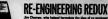
### HOLDING ON TO HANDHELDS



### SOME SITES MEET PRIVACY DEADLINE

Compliance costly in move to protect kids

Web developers and operators

at sites catering to kids got the full flavor of Internet regulatioo last week when they scrambled to meet the April 21 deadline to comply with the nation's first law governing online privacy. And some sites probably didn't make it, risking

The Childreo's Online Privacy Protectioo Act mandates that Web sites that either target children under the age of 13 or collect personal informatioo from them have a privacy policy posted that spells out what information they collect as well as parental notification. and consent systems.

"What we're learning is that

a lot of sites aren't in compliance," said Parry Aftab, a partner at Springfield, N.I.-based Privacy, page 97

# **AMAZON OPENS** BOOK ON WEB SITE

Peek behind scenes reveals how retailer scaled hardware during dramatic growth

The world's largest online bookseller once protected its precious database servers from a leaky Seattle roof with a piece of

blue tarpaulin that a staffer rushed out to buy at Home Depot. Amazon.com Inc. has come a long way since attaching that tarp to the fourth-floor ceiling of its downtown Seattle nerve center two years ago. Today,

will have four times the capaci ty of its current one, Kim Rachmeler, director of enterprise management, told a Retail Systems 2000 audience here last week

Amazoo is typically tight-lipped about its information technology. So Rachmeler's speech provided a rare glimpse into the behind-the-scenes technical challenges, and sometimes

dramatic solutions, that staffthe retailer is building a sec- ers devised on frenetic Inter-

levels that grew 30% each ooth during the company's

first 18 months in business. "Survival is absolutely the ond data center in Virginia that same thing as scaling for us." Rachmeler said. "Scaling is the most important thing we do. It is our No. 1 strategic initiative." And it has been driving Amazon's Web architecture decisions. As traffic soared the first few years, Amazon, opted for bigger and bigger boxes because it had the money but not

the time or the staff to octimize systems, Ruchmeler said. When Amazoo opened shop in July 1995. IT staffers set up a bell to ring every time a book Amazon, page 16

### MICROSOFT BLAMES SLOWER PC SALES

Gloomy projections alarm analysts

BY DOMINIQUE DECKMYN AND LIRDA ROSENCRANCE A Microsoft Corp. official, ending an unusually dour earnings call late last week. predicted lower future growth and blamed it partly on soft sales of corporate PCs. That set off a chorus of concerns about the impact it would have oo the stock market, which re-

since Thursday.

During the conference call with journalists and analysts, Chief Financial Officer John Connors said lower-than-expected sales of business PCs had hurt revenue for the quarter ended March 31. Uncertainty about further business PC growth and the maturity of Microsoft's main product lines. he said, would put percentage reveoue growth in the "midteens" for the fiscal year starting July 1. That report alarmed some analysts, who had exopens today for the first time | pected up to 20% growth.

Microsoft, page 16

THE TROOPS ARE



UR ANNUAL lob Satisfaction Survey found more than half of the IT working class complaining about clueless

bosses, aimless jobs and skimpy bonuses. And a maiority of respondents said stress levels are rising. But Kathleen Melymuka reports that the survey has another message: The happy IT professionals are the ones who get challenging assignments

and the opportunity to learn new skills. Report begins on page 54.

MODELLE DESCRIPTION OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRES MF2 JUL 96 883 18595 MR160/77134PE ORT

UHI

PO BOX 1346 MIN ARROR NE. 48186-1346



EXPERTISE IS A MONDERFUL THING, ESPECIALLY WHEN YOU CAN USE SOMEONE ELSE'S. TO GET YOUR
E-BUSINESS UP AND RUNKING FAST. INTERLIANT GIVES YOU A FULL RANGE OF HELP - FROM PLANNING TO
OMGOING MARAGEMENT - WITH HINIMAL INVESTMENT OF YOUR TIME AND MONEY. AND MAXIMUM ONLINE SECURITY.

FOR MOME. 1-800-334-2586 OR MANN.INTERLIANT.COM/BIGFISH

INTERLIANT

WE SELL SANITY.



### DESCENDING FROM THE THRONE

first in the shipping industry to offer custom it redefined itself as a supply-chain menao

years, Jones plans to retire, Page 42



### FRP DFI IVERS

nlies to 4 500 stores, served by 18 m ment is "a het area ed when an IT pro gets ce on the ground floor of

### NEWS

### COMPANIES LOOK overseas for Web development workers to combat labor shortages and high costs

- MAFIABOY TAGGED as a copycat; original Web attackers may never be caught, security experts say
- CLINTON CALLS for an end to the "digital divide" at Comdex, but the audience is skeptical of his message.
- INTUIT TEAMS with banks, brokerages and credit-card companies for its new online financial service
- **USERS GROW** frustrated by the lack of consistency among
- storage-area network vendors. 12 GOVERNMENT RACES to catch up with the private sector in online service offerings.
- CORPORATIONS STACK new Pocket PC up against Palm personal digital assistants
- 24 BUSINESSES SHY away from the retail version of R/3 28 MICROSOFT PUSHES do
  - envelope on perks, offering senior execs unlimited time off.
- 32 LOTUS FACES an exodus among its top executives.
  - Editorial Letters ..... 34,35 How to Contact CW ..... 96 Company Index . . . . .

### BUSINESS 42 GMAC CLEARS AWAY its

### old systems and paper-based processes to make way for a

- lean e-commerce operation. 44 FIRMS SAVE COSTS by using open-source programmers
- for software development. 46 HOSPITALS TURN TO handhelds to cut down on
- medical errors and save costs ORKSTYLES 47 IT FIRMS TAKE the lead in providing paternity leave bene-
- fits to help lure top talent 48 HANDHELDS POSE grave risks for companies, as corpo-
- rate secrets can easily slip into the wrong hands. 54 WORKERS WANT more responsibility, training and
- opportunities, according to Computerworld's Annual lob Satisfaction Survey DUICKSTUDY
- 58 E-COMMERCE PATENTS cover too much territory, some argue. But others say that businesses need to protect their creations in the market's infancy.

### TECHNOLOGY 64 MOTOROLA DEVELOPS :

### labeling technology that could be useful in everything from in ventory control to amusement park admission tickets.

**68 CHARLES WANG** worries that the individual customer's

### perspective is getting lost in the changing IT landscape. SECURITY JOURNAL 70 PAT CAN'T BELIEVE how

hard it is to use some vendors' Web sites and lusts for a rackmounted firewall implemen

- QUICKSTUOT 72 CONTENT MANAGEMENT systems label and track information on a Web site so it can be easily located, modified and reused.
- **OUR HANDHELD** fanatics debate which is better - the Palm PC or Microsoft's Pocket PC:
- EMERGING COMPANIES BUYERTOUCH ADDS the human touch to gathering and analyzing e-commerce Web site statistics.

... any 15-year-old with a Windows 98 computer can take

down Yahoo. It's scary.

CHRIS CAVIS. CEO OF HEXEOIT NETWORK SECURITY INC. IN OTTAWA SEE PAGE 6

### OPINIONS

- 34 MARK HALL finds a few signs — aside from the antitrust case - that Microsoft's best days are behind it.
- 34 DON TAPSCOTT says the faster you move toward wire less computing, the earlier the payback.

### 35 ROBERT H. ROSEN writes that to thrive in a global economy, you must be aware of different cultures.

- 38 GEOFFREY JAMES relis IT managers: To help keep your IT professionals, cut the management "bull."
  - 38 WILLIAM ULRICH says part noring on Web ventures may

be a strong alternative to IPO

JIM CHAMPY believes that business-to-business e-com merce needs re-engineering for it to succeed

FRANK HAYES (sn't done talking about the IT skills gap He offers six pieces of advice for job seekers

### NEWS

### System Problems Sour Investigation

Markets Inc. for possi ration problems that surfac m the 1998 merger of Banc One rs, in Columbus, Ohio, and First

ng problems resulted from the

### Intel Delays Deskton Celernn Launch

y until June, sources close to ed the 633- and 667-MHz

### Maryland Likely To Adopt UCITA

d state to approve UCITA, the mer's office said it will be the

OSYSTEMS INC. I d its Java 2 Pla

# More Firms Seek Overseas Labor

Skills shortage, need to expedite Web projects drive increase in 'offshoring'

HEN Interfirm Sera-Nova Inc. two months are surgested that auction site LiquidPrice.com Inc. move some of its Web development to SeraNova's offshore operations, Pivosh Gupta, Liquid-Price.com's founder, president and CEO, was skeptical.

Formerly head of software development at database company Informix Corp. in Menlo Park, Calif., and a self-described "control freak," Gupta's motto was. "You don't let development out of the bouse." But he was eventually swaved by the cost savines: The same project in the U.S. would cost almost three times as much as overseas. And soon he was armed with a strategy to make offshore outsourcing work

without giving up control. Cupertino, Calif-based LiqmidPrice.com isn't the only company farming some of its technology work overseas. Although companies have capitalized on "offshoring's" time and cost savings for years, analysts and labor experts said the practice has accelerated in the past six months. Efforts to expedite Web projects and the depletion of H-IB visas are

In the past six months, MaryLu Cianciolo, an immigration attorney in Chicago, heard more than 50 employers express interest in offshoring as the quota for H-IB visas approached its cap. (The U.S. Immigration and Naturalization Service stopped taking new petitions March 21.) But a provision to a proposed H-IB visa bill could sig-

tive labor sources

nificantly alter some employ ers' approaches to offshoring, forcing firms to seek alterna-Cianciolo warned.

Many companies have bypassed the H-IB cap by estab lishing foreign offices. U.S. employers can bring foreign workers, who are the company's employees in those offices, to the U.S. on a transfer visa rather than the H-IB. But employers will no longer be able to go that route if a bill introduced two weeks ago by U.S. Rep. Lamar Smith (R-Texas) is passed. While the bill proposes to remove the H-IR visa cap, it also includes a provision that would force employers to "keep those individuals overseas unless they qualify for an H-IB," said Cianciple. Although companies have traditionally relied on offshore talent to perform application development and maintenance work, they are now farming

out more sophisticated Internet services, said Cynthia Dovle, a senior analyst at International Data Corp. in Framingham, Mass. This is the case in India, where "services offered are becoming more complex and cutting-edge and revolving

around the Internet," said Doyle. The time zone difference between the U.S. and India lets workers engage in Internet projects around the clock. Julie Giera, an analyst at Giga Information Group Inc.

in Cambridge, Mass., said offshore development has risen more than 25% in the past seven to eight months. One factor is the skills short-

age, Giera said. A study from the Information Technology Association of America in Arlington, Va., estimated that U.S. employers will need 1.6 million IT workers during the pext 12 months but that about half of those positions will go unfilled &

# **Definition for ASPs Emerging**

So far, they've been all over the map

A more refined concept of the role of application service providers (ASP) may crystallize this year, according to a study released last week by Cahners In-Stat Group in Scottsdale, Ariz

In an .ffort to define the ASP model, the Cahners study. authored by analyst Kneko Burney, posed a series of questions to 100 ASPs, According to Burney, most respondents said they wanted to "do everything," from providing highspeed Internet access to hosting and managing applications for businesses. Many, she said. "are not focused at all."

"This is very reflective of the

fact that the market [for ASPs] is evolving and emerging." Burney said. "Often, it's unclear what an ASP provides a

But Burney and others see that situation changing as ASPs begin to form key partnerships and narrow their focus. She noted that telecommu-

nications carriers are getting into the act, with companies like AT&T Corp. and Sprint Corp. providing the network infrastructure for ASPs and forming co-marketing alliances with them. According to the Cahners study, ASPs will spend up to

\$1 billion for internetworking infrastructure equipment this This, Burney said, tells busi

nesses that an ASP's applications are being served from a reliable network and that

there's some technological muscle behind the ASP to resolve any reliability issues Burney said that in those cases it's the carrier not the ASP, that will end up owning the customer relationship.

Burney said she's seeing evidence that some ASPs are setting the idea that they can't be all things to all customers. "They're beginning to specialize (in serving specific applications)," she said

Gayle Howard, electronicbusiness applications director at Sprint in Dallas, said ASPs "have to have personnel that specialize by application" to be successful. And the requirements grow in proportion to the area served.

Annapolis, Md.-based USinternetworking Inc. (USi) is betting that its 1,200 empl ees will keep it ahead of the pack. Internet Research Group in Los Altos, Calif., ranked USi as the top ASP by number of customers in a February study.

USi's customer list is a formidable one. It hosts applications for Knoll Pharmaceutical Co. in Mount Olive, N.J., Providius Financial Corp. in San Francisco and Hershey Foods Corp. in Hershey, Pa. Applications served from USi's data centers include those from Aribe Inc., Lawson Software, Microsoft Corp., Oracle Corp. and PeopleSoft Inc., said USi Senior Vice President Michele

USi is setting more company as more firms call themselves ASPs. Burney said there were roughly 70 ASPs last year and more than 100 by the end of the first quarter.

"Everyone but my moth is calling themselves an ASP and now she's thinking about it," Perry said. "A true application service provider show be able to deliver the bardware, application software. network infrastructure and take full responsibility for a

# **Unicenter Helps RadioShack Stay Plugged In.**



visit us at internetsolutions.ca.com.



For more information,



**Unicenter TNG** 

# Stolen Laptop Prompts Call for Internal Reviews

Incident demonstrates shortcomings of intrusion detection

F YOUR FINEWALLS, INTU-

sion-detection software and encryption technologies make you feel safe, think again. As the recent incident involving the theft of a U.S. State Department laptop demonstrates, having the best protection against external crackers means little if sensitive

data is allowed to simply walk out the door "Statistically, 60% of comouter crimes happen inside (companies)," noted Winn Schwartsu, founder of the security consultancy Interpact Inc.

in Seminole, Fla. "Putting all your efforts on intrusion detection at the perimeter of the network is a failing policy if that is all you are going to do," said Schwartau,

who is releasing a book on security issues, called Cybershock later this month

The State Department last week said the FBI is leading an investigation into the disanpearance two months ago of a laptop that might contain highly classified material. Last month, a laptop containing sensitive data about Northern Ireland was stolen from an

agent of Britain's MIS internal security bureau. Laptop theft poses a major risk when it comes to compromising corporate data, and it will only set worse with the increase in the use of bandheld devices, said Chris Christiansen, an analyst at International Data Corp. in Framing-

Safeware. The Insurance

estimates that 319,000 lapeops were stolen in the U.S. last year. People are walking around carrying "corporate words, internal phone lists. memos and details on proprietary projects" that could cause damage if it were to fall into the wrong hands. Chris-

tiansen warned A virtual flood of products for securing laptops and tracking them down when stolen is available from vendors such as Absolute Software Inc., SAFlink Corp., Targus Inc. and The Toronto offices of insur-

Quantum Power Labs Inc ance firm Jardine Lloyd Thompson Canada Inc. used one such product to quickly track down a laptop that was stolen from an employee's car last year Today, the company has the software installed on all lan-

tons and has instructed its employees not to leave notebooks unattended. "But eenerally speaking, the larger the corporation, the more difficult it becomes to police these things," said Rick Smith, the firm's vice president of information technology

### **Taking Practical Steps**

"If you are concerned about sensitive information being carried on mobile devices, you want to be able to impose control on who can access that information," via measures like encryption, said Eric Hemmendinger, an analyst at Aberdeen Group Inc. in Boston.

Laptons are by no means the only source of risk, though, analysts warned. Security risks include people who inadvertently unleash viruses on corporate networks, disgruntled employees, indiscriminate access to corporate facilities and a lack of controls over who

### AT A GLANCE Prudent Precautions Nonteclysical security mea:

componies con take Have a corporate policy, put it in writing.

■ Credie your own computer emergency response learn for handling catastrophic computer and network problems and

or outside · Make employee education and aware-

necs a high prorty

a Advertise to your staff that you employ The listest and greatest in security monto - whether you use it everywhere or not - Shoul or him the appropriate shall

gets access to the internet. So it's a mistake to rely solely on

technology to reduce security risks, Schwartau said. Instead, Schwartau warns in his book, corporations need to focus on employee education

and awareness training, putting security policies in writing, shredding materials such as personnel lists, erasine hard disks prior to disposal and periodically checking company passwords to make sure they're not easy to crack &

# Agency Inc. in Columbus, Ohio. **Analysts: Mafiaboy Only Amateur Copycat**

ham, Mass.

Stronger filtering tools could have foiled such an attack; ISPs urged to cooperate

### The Canadian teen-ager known

as Mafiabov who was arrested last week in connection with an attack against the CNN Web site is an amateur who simply copied tactics used by far more sophisticated attackers who may never be caught, security analysts said.

Despite the hooeks surrounding the 15-year-old's arrest on "mischlef to data" charges related to an attack on CNN's Web site on Feb. 8. Mafiaboy is likely not responsible for three other denial-ofservice attacks launched earlier. The sites affected between Feb. 7 and 14 were Yahoo Inc... eBay Inc. and Amazon.com Inc. "He's a 'me-too guy,' just re-

sponsible for the CNN denialof-service that came after the

first major bit of Yaboo," said Chris Davis, CEO of Hexedit Network Security Inc. in Ottawa. "The people who instigated it are a bigger threat: they are some of the best in the world, and these are the people I fore drifts Davis said the tools used in

the original attacks were created by much more skillful attackers and could be used again to breach the defenses of e-commerce sites.

"They are so good, you won't catch them unless they make a major mistake," said Davis. "They come up with new stuff all the time, and it is very difficult to stay ahead of them." Davis said another part of the problem lies in the fact that Internet service providers and other outfits that make up the

vents packet spoofing defeated many defenses because the packets that flooded the targeted servers appeared to be coming from a legitimate source. Ingress filtering can determine whether a packet was

indeed sent from a particular lo-

The people who instigated Ithe attacks1 are a bigger

threat. CHRIS DAVIS, CED.

it's stopped at the router But Michael Lyle, chief technology officer at Recourse Internet backbone aren't using Technologies Inc. in Palo Alto. Ingress filtering, which pre-Calif., noted that this type of filtering affects network per-The denial-of-service attacks formance. In addition, the database for IP addresses isn't always accurate and could re-

sult in a loss of legitimate network traffic. "Databases need to get better, and there needs to be better tools for putting together filtering lists for different service providers automatically,"

Another technology some

said Lyle. Stop-gap Solution

sites are pursuing is a rate-

shaping filter that can choke off traffic to a router before it floods a server. According to Lyle, this type of filter on a Cisco Systems Inc. router could be set so that it wouldn't accept more than, say, 500K bits of data on a network connection. "This is just a stop-gap solution because, ultimately, the attacker will learn to flood

cation; if its address is spoofed, with things that look like legitimate network connections like HTTP requests," said Lyle, "It makes sense to shut off the source of the attacks where they are coming from rather than shut them off as they are coming in the door."

While the initial attackers may never be caught. Lyle said denial-of-service attacks have prompted the information technology community to seek a greater degree of cooperation among service providers to exchange information about attacks, capture data and protect sites

Mafiaboy appears to have used an exploit associated with the Washington University File Transfer Protocol. This gave him remote access to machines where he could plant a tool called Tribe Flood Network, which flooded targeted servers with packets

"You can get Windows versions of any of those I toois L so any 15-year-old with a Windows 98 computer can take down Yahoo," said Davis, "Ir's scary." 0

# 92% of the USA TODAY Internet 100 run Oracle.

It seems, like great minds, great e-businesses think alike.



## Chiquita to Upgrade Infrastructure

logy infrastructure at vide as part of its plobal expansion. The IT upgrade is part of an officiency drive by the truit and regetable producer and distributor, which last year out more

### Domain Name Growth

The Internet Corporation for As-signed Harnes and Humbers in Madel Roy, Calif., will consider ing new top-level domains at its presenting in Yekohama, Japan, as a result of a committee vote last ose domains should be or how

### SAN Center Has Home

The Mountain West, Call.-based Storage Networking Industry Association (SMIA) last week amounced the formation of an industrywide for cility for storage networking too will be located in Colo and will open later this year.

ILICON GRAPHICS INC.'s sales for

### Short Takes

Its fiscal 2000 third quarter, which ended March 21, totaled \$564 milion, down from \$619 suffice for the same period last year. The Mountain View, Callt -based company repo arter, compared with \$40 mills lesses for the same period last year. ... Pleasanton, Call.-based COMMERCE ONE INC. rep. first-quarter revenue of \$35 million, compared with first-quarter revenue of \$2.1 million in 1998. Leason we \$14 million, compared with \$7.8 on for the same period last year. . . . Mountain Yes, Calit.-based VERITAS SOFTWARE CORP est \$174.3 million in the first quar or, compared with \$13.5 million in 00's first quarter. Sales totaled 244.6 million for the quarter, up

rem \$134.7 million for the same

period a year ago.

# Clinton Gets Mixed Reviews at Comdex

There were a lot of empty seats during the president's keynote address

BY LEE COPELANO AST YEAR, Microsoft

Corp. Chairman Bill Gates delivered the keypote address at Comdex/Spring to a standing-room-only audience. Last week, President Clinton took the podium at the trade show here and spoke to a lessthan-capacity crowd. Clinton made Comdex/

Spring 2000 the final stop on his Digital Divide New Markets tour, urging high-tech companies to help bridge the sap between affluent communities with access to computers and the Internet and those

without such access. "I came here today to ask way to set another trend - to

devote more time and technology, more ideas and energy, to closing the digital divide," Clinton said. He said that more than 400 organizations had signed up to participate in the initiative. But among show attendees, his call to action receised mixed perions

"I don't think the government has any business in this," said Pandy Cibron a portone administration supervisor at software maker Basis International Ltd. in Albuquerque, N.M. "The government does not

nted to step in and provide free Internet connection to everybody when you can pretty much get it for free if you know what you are doing,"

Gibson said. "The problem is not the rich keeping technology away from the poor, and the government should not come in and tax people for a program that probably won't help anyone sorway. "There are some challenges ahead.

but [Clinton] has clearly defined an agenda, and it will be up to us to exe cute it," countered Keith Hartley, director of marketing at SteelEye Technoloborated at Co ey Inc in Mountain that he wants to clo View, Calif. "The the digital divide

private sector does owe back to the economy and the government to help the government spur new markets. It's not enough to capitalize on the existing markets as the economy changes. We need to work with the public sector." The president asked information technology companies and professionals to help put computers and Web access into schools, expand internships and deepen talent pools to include more ethnic and gender diversity. According to the U.S. De-

partment of Commerce 30% of white Americans and 36% of Asian Americans have Internet access at home, while only 11% of African Americans and 13% of Hispanic Americans have that access. Clinton couched

his pitch in economic terms, arguing that closing the gap would create new husinesses and new sources of employees and customers.

But "people vote with their attendance," said analyst Phil Russom at Hur-

witz Group Inc. in Framine ham, Mass. "The [relative] lack of people there shows a lack of interest. High-tech firms are run by quick, relatively young people. Historically, concern for philanthropy comes at later states in people's lives."

# Republicans Vow Less Interference With Net

concerns at Comdex

BY DOMINIQUE OECKMYN

In a roundtable discussion last week between Republican congressmen and representa tives of the technology industry, politicians did their best to high-tech indus-

try, promising less regulation, a contimued moratorium on Internet taxes, more R-IR visas and expanded trade opportunities with China. The discussion

took place at the Comdex/Spring REP. JERRY WELLER 2000 trade show Opening up the

doors to trade with China and | cussed their approaches to the creating more H-IB visas for | problem. Rep. Jerry Weller of foreign high tech workers were Illinois, who hosted the roundthe top concerns voiced by the table, struck a chord with the broadband internet access. He next month about privacy.

industry panel. Its members Industry panel airs included representatives from Microsoft Corp., Schaumburg, Ill.-based Motorola Inc., Plano. Texas-based Electronic Data Systems Corp. and several small and midsize companies

The congressional delegation included some of the most active Republicans on technolony issues, such as Reps. Chris Cox (R-Calif.), chairman of the pander to the concerns of the House Policy Committee, and Billy Tauzin (R-

La.), chairman of the Telecommunications committee A day after

President Clinton called on the Comdex crowd to help close the "digital divide" between the tech-

wants to see PC decre nology haves and ation cut to one year have-nots, several Republicans dis-

when he discussed two acts he has proposed. One would allow firms to depreciate the costs of PCs in one year instead of five. The other would give companies tax credits for PCs they give to employees. Weller lauded General Motors Corp., American Airlines and other companies for pro-

viding PCs to workers. \*Unfortunately, what these companies have learned is that the IRS wants to tax (such gifts]," he said. He also said he hopes to see action before the

end of the year on his proposal to shorten PC depreciation. Ion "Maddog" Hall, president of Amherst, N.H.-based Linux International, proposed that year-old PCs could be donated to schools.

Tauzin, who spoke during much of the three-bour discussion, called for further deregulation of the telecommunications industry, saying competition is the best way to ensure that consumers have cheap also called on industry rep sentatives to support HR 2420. the Internet Freedom and Broadband Deployment Act of 1999, which may soon have enough co-sponsors to bring to the floor of the House.

Tauzin said laws that aim to guarantee universal access to broadband should be considered only as a last resort.

### **Privacy Debate**

Several speakers came out against government interference in guaranteeing privacy on the Internet Bob Goodisets (R-Va.) criticized the strict regulatory approach taken by the European Union, saving that approach has generated "very little results."

Goodlatte said strong con sumer reaction against U.S. firms that have infringed on customer privacy has caused these companies to recoil. But Tauzin argued that the issues involved aren't yet sufficiently understood.

"We are not ready to sort this out: we need some help," said Taurin, calling on technology industry representatives to attend an information session

# Quicken Throws Hat Into Bill Payment Ring

Joining the likes of Yahoo Inc. and Microsoft Corp.'s Money-Central, Intuit Inc.'s Quicken. com is offering MyFinances. The all-purpose financial ser-vices dashboard offers everything from bill paying to stock

tracking. Though Quicken is a big name in the area of money management, it will be going brad-to-head with some bie players - including banks

themselves. Mountain View, Calif-based Intuit has teamed with 33 banks, 15 brokerages and eight credit-card companies - with another 57 banks and creditcard companies expected to join in the next couple of months. However, many banks already offer electronic bill paying and other financial services online

"If you've got customer satsfaction already existing for a bill payment solution with a bank, it's going to be difficult to move a customer to this service," said Randi Purchia. an analyst at Newton, Mass.based Meridien Research Inc. "But if you've got a new user. those are the ones you might be able to catch." Intuit's service may also be attractive to customers who

move and change banks frequently, she added. Another set of candidates is

people who have multiple bank accounts, said George Barto, an analyst at Stamford, Conn.based Gartner Group Inc.

"Customers know that if they sign up with their bank. the bank will only make payments out of the checking account at that bank " he said

### JUST THE FACTS MyFinances Dashboard

Credit-card transactions/account

 Bil presentment/sayment capabilities Reminders of bills carring due Customzable portfolio tracking

 Portiolo-specific news/ton daily news Analyst alerts on stocks owned · Historical investment performance data also pay bills out of brokerage | checking account, however, Inaccounts or other sources. For those customers who offer any additional benefits

tuit's service will probably not

and may cost more to use, Barto said. In addition, the bill payment service might create conflicts with the banks themselves. "Banks do see bill payment as their purview," Barto said.

They really don't want sombody bypassing them." According to Gartner Group research, online bill payments are expected to increase from around 1% today to more than 25% in 2004. B

Innovation Data Processing...



For over two decades, Innovation Data Processing has brought performance proven solutions to thousands of OS/390 users. As the complexity of enterprises

grow, Innovation is keeping pace with the challenges of technology with unsurpassed reliability and unique storage management solutions.

Innovation products like FDR InstantBackup work with and enhance the latest revolutionary technology available from hardware vendors tike EMC with TimeFinder" and StorageTek"/IBM\* with SnapShot Copy". FDRCLONE, an option to ABR can reduce restore time by 80% at your disaster recovery site.

tive Ideas...Shaping the Future of Storage Management...allow users virtual 24x7 evallability to their data and...reliable and fast recovery ansite or at a disaster recovery location.

FDR\* . FDRCLONE\* . ABR\* . INSTANTBACKUP\* . FDREPORT . IAM\* . FDRAPPL\* FATS\*/FATAR\* • FDRSOS\* • UPSTREAM\* • FASTCPK • UPSTREAM/SOS\* • FDRREORG\*

Call 973-890-7300 now! Visit our website: www.innovationdp.fdr.com FREE 90-Day No-Obligation Trial and FREE Puzzle T-shirt.

198: 275 Paterson Ave. Little Falls, NJ 07424 + (973) 890-7300 + Fax. (973) 890-7347

# **Users Tell Storage Vendors to Get Along**

are unable to work together. "It's not a lack of standards.

pology deployment at The week griped about storage-area it's the lack of consistency and Chase Manhattan Corp.'s Glo-

bal Private Banking unit in New York, Standards could be created, but they're open to interpretation, and it's the subtle differences that stop interoperability. "No one is saying. Til be the benchmark for

these standards," Boyle said. The two vendor standards

groups, the Storage Network-Industry Association (SNIA) and the Fibre Alliance. "need to stop the infighting and agree to disagree," said Earl McAllen, program manager at Computer Sciences Corp. in El Segundo, Calif., and former information systems manager at Earon Corp. in Houston, "The blocks are there, but everybody wants to rearrange them."

Information technology managers want standards, and the lack of software completeness and maturity are inhibiting SANs, said Bob Gray, an analyst at International Data Corp. in Framingham, Mass.

In the Works The SNIA and the Fibre Alliance, led by Hopkinton, Mass-based EMC Corp., are both working on SAN-related standards, such as global file systems and routing. The Fibre Alliance last summer submitted the management information base (MIB) specification. which will standardize bou storage devices will be addressed on the network. Although the SNIA gave its input and MIB is now before the Internet Engineering Task Force, no approval date is known.

at the SAN standards issue may be resolved by an unlikely group - networking companies such as San Jose-based Cisco Systems Inc., according to Lauri Vickers, an analyst at Cahners In-Stat Group in Scottsdale, Ariz. Cisco, which owns the router market, has the IT confidence and the size to force whatever standard it develops down the other ven dors' throats, she said.

на Сол

Great e-Business Ideas **Demand Great Execution.** 

Xpiredfoods.com Sal Monella 1.800.XPIRED

Some Ideas Are Beyond Even Our Help.

idea:com\_



Dear 3Com customer:

By now, you've heard that 3Com is exiting the Enterprise LAN marketplace.

Foundry Networks" would like to help ease your migration dilemma by offering aggressive financial incentives" allowing you to replace your existing CoreBuilder" devices with more advanced Foundry Networks' Bigfron" chassis-based Layer 3 solutions.

Over the last 20 months our BigIron switches have delivered the highest packetforwarding rates and total switching capacities in the industry at 96 Mpps and 256 Gbps, respectively. We also have a broad feature set:

- Full Multiprotocol and Multicast support including IP, IPX, AppleTalk, OSPF, BGP4, IGMP, DVMRP, PIM-Dense and Sparse Modes
- A High Availability Platform with Non-Blocking Performance, Wire-Speed ACLs, VRRP, Security Features, and Redundant AC and DC Power Supply Options
- Internet Traffic Management Layer 4-7 Switching that includes Local and Global
  - Intertine trainic electrogerment Layer 4-7 Switching that includes Local and Glob Server Load Belancing, URL and Cookle Switching, Frewall Load Belancing and Transparent Cache Switching
- Internet Routing Including OC-3c, OC-12c, and OC-48c Packet Over SONET/SDH

Please contact your local Foundry representative today for more details by calling 1.888.TURBOLAN, 408.586.1700, emailing info@foundrynet.com or visiting us online at www.foundrynetworks.com/migration.

We're committed to delivering networks that support the next generation of LAN infrastructure and e-business applications that provide the best long-term, costeffective solution for you.

Founday Alefworks

\*This offer is good through September 30, 2000. See more details on our Web site.

# 'E-Government' Spending To Soar Through 2005

CIOs play catch-up with private industry in offering online services to customers

TTH the year 2000 problem behind them, feder al and state CIOs are rushing to catch up with the private sector in offering online services.

Analysts expect spending oo government-related Internet ventures - and public information technology projects generally - to soar in the gle portal to tie them together.

more shood (con chart) Stone ford, Conn.-based Gartner Group Inc. says speeding on government Internet activities will increase from \$1.5 billion this year to \$6.2 billion by 2005. This task, however, is filled

with obstacles. Many publicsector e-commerce efforts have been disjointed. For instance, the federal government has more than 20,000 Web sites that use different formats and standards and have no sin-

Department of Commerce. Federal agencies are developing an online portal that may

be ready by year's end. But providing online services goes beyond that - it also means integrating back-end and online portems as well as dealing with complex privacy issues. There are, however, financial incentives for solving these problems

\*Ninety percent of our Icustomer) interactions are faceto-face, time-consuming and

The federal government "is very costly," said Doug Robinstill kind of operating in its fewson, an IT official at the Kendal stovenine mode," said Alan tucky governor's office. Balutis, deputy CIO at the U.S. At two conferences last

week, the FOSE trade show and McLean, Va.-based Federal Source Inc.'s State of the States conference, government CIOs said public agencies can save money, improve customer service and streamline operations by offering online services. Arizona, for instance, drastically cut motor vehicle department waiting-line times by moving some services such as

### Quality Counts

registration renewals online. Public officials say users expect the same kinds of aroundthe-clock services and personalized experience they get from visiting private-sector business sites

professionals in the private This push to online govern sector Government agencies ment is also making public of can't offer stock options. And ficials more "brand-conscious" though apencies can offer reas a way of building custome: relationships. "Branding is critical to state government said Robinson, whose state advertises its online services as KyDirect. "We want Icus-tomers I to feel comfortable."

George Molaski, CIO at the U.S. Department of Transportation, said the government can do more to brand the services used by private third parties. For instance, some travel Web sites are using U.S. Federal Aviation Administration radar data to show plane locations, but users may not know that, "We're not communicat-

ine back to the citizen that this

believes a "natural trust" will build up with users overtime "We all used to wonder whether our credit-card num hers would be misused when we made an electronic purchase," she said But Otto Doll, South Dako

ta's CIO, said the public is increasingly worried about how individual information is being aggregated and who is getting access to that information State officials "are getting hammered more and more relative to these questions."

is in fact a product of your tax

CIOs also say users need to

Allisoun Moore, CIO for the

state of Maryland, which plans

to offer 80% of its state ser-

vices online by 2004 said she

feel they can trust the govern-

ment to protect inform

dollars," he said.

# Feds Consider Upping Pay for IT Workers

Looming retirement, industry pay scales threaten staffing

Federal officials are taking a hard look at increasing the pay rates for information technology employees in order to stay competitive with the private

The need will be especially acute as federal worker retirements mushroom during the next few years.

The Chief Information Officers Council is conducting a study with the National Academy of Public Administration to determine whether pay scales should be permanently increased for federal IT workers.

"If we don't do something on, we're going to be in more [of a] crisis than we're in now." said Gloria Parker, ClO at the U.S. Department of Housing and Urban Development. A separate study by the U.S.

Office of Personnel Manage ment (OPM) is examining whether there should be a temporary increase in federal IT worker salaries. The government has already increased salaries of highly skilled occupations, such as medical officers, to compete with the pri-Federal agencies are report-

ing numerous unfilled IT positions. They're hardly alone; the Information Technology Association of America in Arling-ton, Va., estimated that U.S. companies will be able to hire only half of the 16 million IT workers needed this year. But the federal government faces unique problems.

Starting wages run from \$23,000 to \$35,000 per year, a range considered well behind salaries paid to entry-level IT

### AT A GLANCE Federal IT Workforce The aeticeic By 2006, the federal gover

ment II workforce will be relatively stable in sand employees to about 71,000. Main problem: During the next live years.

the federal government will have to replace approximately 32 000 IT workers due, in large part, to a refreement "bubble. Chief challenge: Entry level tederal IT jobs pay from around \$20,000 to \$30,000 per year, while provide sector IT jobs typeand \$50,000, according to Computerworld salary surveys.

### tention bonuses, they often don't have the money to do so. However, the most pressing problem concerns age Roughly half of the nearly 70,000 current federal II workers will be eligible for retinement by 2006 The study could lead to

salary scale increases of as much as 30%, said Henry Romero, an associate director at the OPM. The study should be completed by the end of the year, he said. But federal agencies are try-

ing to do more than increase salaries. There is levislation pending in Congress that would pay the cost of academte degrees for federal employees, along with licenses and certificates.

Private-sector employers are finding that base pay is becoming less important to IT workers, said Rick Distasio, a vice president at Compaq Federal LLC, a unit of Houston-

based Compaq Computer Corp. that works with the federal sovernment. More important now, said Distasio, are annual stock and cash-based incentives.

# Compaq Lays Off 450

Compaq Computer Corp. has

laid off about 450 employees as part of its continuing efforts to slash its worldwide workforce by 7,000 people, a company spokesman confirmed

The latest job cuts occurred at the Houston-based Consumer PC Group, said Compaq

nan Alan Hodel Last July, Compaq CEO and President Michael Capellas announced that the firm would lay off between 6,000 and 8,000 people from a total of

nearly 70,000 employees after the company posted a loss of \$184 million. McCarthy writes for the IDG

News Service in San Francisco.



"Reliability is key. In terms of stability and reliability, I've found the Windows and Compaq Proceedings of the second of the second of the better than our Sun environment."



"Now that we've gone in this direction, we're also finding that our cost is substantially reduced." "For us that's an obvious advantage."

To find out why Kaj and his team selected a Windows\* and Compaq solution over Sun for their Web site, go to www.QUOTEstory.com

Kay built his solution on the Microsoft<sup>®</sup> and Compag platform using:

Microsoft Windows NT\* Server
Compaq ProLiant 1850R Servers
Compaq ProLiant 5500 Servers
Microsoft SQL Server\*
Microsoft Site Server
Microsoft Site Server
Microsoft Wisual Studio\*
Compaq Insight Menager
Microsoft Visual SourceSafe\*

COMPAQ Microsoft

The Business Internet

# SOL Server 2000 Beta For Windows CE

result Corp. has announ ble June 30. The product orts Windows CE platforms, eling Pocket PC, Handhold PC

### Keane Wins Contracts From J. P. Morgan

Keene Inc., a Booken-based sy rator, said it has made a deal integrater, said if has made a deal with J. P. Morgan & Co., a New York-based global investment bank for two separate information tech-nology projects. The first tovolves building a deta repository for the nk's fixed-income instruments providen. Keepe said it also will

### Security Hole in Netscape Browser

orfre.org. an online civil lib nization in Seattle, last Netscape Communicator 4.x owner that allows malicious Web no to gain access to files on ors' hard drives. The problem

### Manufacturers Keep **Customers With We**

o a survey of 80 senior man

# Early Corporate Users Plan Pocket PC Pilots

Hotel operator will pit Palms against Microsoft's device

ARLY corporate users of Microsoft Corp.'s Pocket PC, introduced last week, plan to pilot the device in one case evaluating its performance against personal digital assistants (PDA) from Palm Inc. - before making a decision on full-scale deploy-

Starwood Hotels and Resorts Worldwide Inc. in White Plains, N.Y., plans to have guest-room cleaning supervisors test a rusged wireless Pocket PC from Symbol Technologies Inc., while at the same time rolling out a remote check-in and checkout service

that uses wireless handholds **Testing Casio's Device** EMC Corp. plans to run a pilot using Pocket PC hard-

ware from Tokyo-based Casio Computer Co. with its regional technical specialists who perform high-level maintenance. troubleshooting and repair oo customer sites.

has quit.

storage systems installed at Danny Hudson, vice president of distributed systems at Starwood, described himself as "device-agnostic," adding that

Pa., resigned from the com-

sany effective immediately.

McKay chose not to accept

plans to choose one device for both applications. Hudson said Starwood, which operates the Luxury Collection, Sheraton, the Hopkinton, Mass-based Westin Four Doings

and W hotel chains, will carefully monitor the Pocket PC's battery life during the tests. "We want batteries capable of lasting an eotire shift," he said. Starmond's Palm-based re-

mote check-in and checkout system is well along in development and will be quickly deployed throughout the Westin chain said Hudson, Starwood plans to install the Pocket PC housekeeping system in

50 hotels during the next 10 months in a broad test. Both the Palm PCs like this one, Hewle and Pocket DC Packant's Jamesta devices will com municate with wireless LANs a

installed throughout the hotels. These networks should make it easier for guests to check in and out anywhere on a hotel roperty, Hudsoo said, with a PDA-equipped employee able to swipe a credit card "in the restaurant after you've fin-

**SAP America CEO Quits** In Wake of Poor Results

directors to become chief fi-Executives leaving the U.S. opnancial officer of parent comeration of enterprise resource pany SAP AG

planning software vendor SAP Meanwhile, SAP AG report-AG continued last week with ed a 43% drop in net income the company announcing that for its quarter eoded March 3L the bead of SAP America Inc. compared with the same period last year. Company execu-Kevin McKay, CEO of SAP tives described the quarter as America in Newtown Square.

"challenging Revenue in the Americas region fell 3% compared with the same quarter last year.

Wolfgang Kemna, managing an offer from SAP's board of director of SAP Germany, will News Service in San Franci

ready adopted Palm devices, according to Michael Cipriano. director of customer service at

tion systems group. But the company de-cided to pilot the Pocket PC due to "a very significant relationship" it has with Microsoft and the ability to easily synchronize existing corporate systems with the new Windows CE operating system in the Pocket PC.

Stability is Key EMC's test will fo-

cus on the stability and case of use of the new Windows CE operating system, Cipriano said. Critics have bashed

of Windows CE. Recalling their experiences with Windows 3.0 and the third release of Windows NT, Microsoft executives were widely quoted

last week, saying it takes them three tries to field a stable platform Ken Dulaney, an analyst at Gartner Group Inc. in Stamford. Conn., said he wasn't

surprised that some of the early corporate adopters of the

take over as SAP America's CEO. Ernie Gunst, managing director of SAP Switzerland. will add Kemna's German

### duties to his current role. Rumors Swirling

McKay became SAP Ameri ca's CEO after Paul Wahl, the previous chief, quit in September 1998. Rumors had been swirling for the past few months that McKay would leave SAP, according to Harry Tse, an analyst at The Yankee Group in Boston. Tse said he expects that McKay will head

a start-up company. Haney writes for the IDG Pocket PC were users of the kind of embedded systems made by companies such as Holtsville, N.Y.-based Symbol Technologies, because earlier versions of Windows CF had done well in the embedded market. Dulaney called the Pocket PC an "adequate platform for corporate users and predicted that in the near term, both Santa Clara, Calif.based Palm and Microsoft will do well in the corporate market.

### Heavyweights Will Support The Pocket PC

he Pocket PC last week with an impressive list of heavyoht application deve and systems integrators in the company's third attempt to

shrek its Windows operating covironment for easy to use endheld devices.
Polm inc. in Santa Clara. Calf., Microsoft's chief com-petitor in the handheld morket. quickly fired back that it not

only had agreements with any of the same independ ere vendors but also had a far larger pool of 60,000 software partners.

Ken Dulaney, an analyst at Gentner Group Inc. in Stamlord. Conn., looked at the Microsoft list and said. "This is a bit of fluit. [Microsoft] had to do this

to compete with Paim, but [the list does not meen they're all Companies on the list included Bean Co.: Clots Systems Inc.: Computer Associates International Inc., which plans to support or supp plans to support use of its Unicenter TNG on the Pocket PC; Oracle Corp.; SAP AG; and

has also signed up 130 integ tors, including Ameranth Tec nology Solutions Inc., Cap Gernini Group, Electronic Da Systems Inc., Forte Systems Inc. and the SEMA Group PLC

Kenth McNafly, president of Ameranth in Sen Diego, which is developing a Pocket PC sys-tem to help Stanwood Hotels and Resorts track the condi tions of guest rooms said. "We've already experience

# Sitara Networks is 1st to enable e-business networks.

to move on a hot new market

to deliver a QoS appliance solutio

to integrate bandwidth management and caching

to intelligently integrate applications and networks.

QoS solution with a flexible hardware and software architecture

to deliver a consistent Quality of Service across a wide range of speeds and feeds

to deliver a complete and powerful QoS solution to the market

practical and easy QoS solution

to guarantee benefits of product or your money back Sitara Networks is a hot new mover with hot customers and partners like—

Citrix

Bose

AOL

Primus

eGain

Progress Software

Data Comm Systems

Intel

Data Accessories

Aristasoft

Equinox

Shouldn't you be associated with the industry leader?



Making Networks Smarter

# Tools on the Way For Online Sellers

Service feeds data to multiple exchanges

LOWLY AUT surely, more software tools and services to belo companies on the sell side of the businessto-business e-commerce equation are hitting the market. Last week, Haht Software Inc. in Raleigh, N.C., an-nounced its Seliside Exchange a subscription-based Internet marketplace where suppliers can integrate product, customer and other data into multi-

ple online exchanges. The fee

er of electronic components could use Hahr's service to feed pricing and product data from its in-house enterprise re-

source planning (ERP) system to various industry exchanges. Haht is also offering a companion software product called Sellside Links, which is bosted and maintained by suppliers. It lets suppliers execute business to-business electronic transactions directly with customers who are using different procurement systems, including software from Ariba Inc., Com-

merce One Inc. and SAP AG

The Maht service and soft-

& Co. enterprise software.

integration is customer retention "Continued integration going back to customers' systems is where e-business is evolving because that's where customers will save money,"

vich. CIO at Sigma-

Aldrich Corp., a St.

ness-to-business e-commerce applicatioo software, currently support suppliers using SAP R/3 software and J. D. Edwards Suppliers said a key notential benefit of more

said Larry Blaze-

more suppliers to Net exchanges, said Dan Sholler, an ana-

lyst at Meta Group Inc. More suppliers would mean more choices for buyers. be added.

Louis maker of specialty chem-

how they want to run their busi-

"We have to be prepared to

accept that," Blazevich said

The bottom line is that "it's the

Using the Haht service and

software, suppliers can also de-

from back-end systems to indi-

wideal customers on

Internet exchanges.

The ability to dif-

ferentiate by pro-viding data beyond

prices could attract

nesses, Blazevich explained

cost of doing e-business:

liver customized informa

icals for research laboratories. Many of Sigma-Aldrich's 60,000 U.S.-based customers are huge pharmaceutical firms with the clout to dictate exactly

be taken off-line for mainte-Web database from one to four nance or if it had hardware machines and increased the number of online servers. But in the future, Amazon knows that hardware won't be able to solve every problem.

Rachmeler noted that the opline retailer's focus will shift to modular software systems, which will help ease development and maintainability. Giga Information Group analvst Mike Gilpin said Amazon

took the right approach to expansion, given its circu stances. Now the company will experience the "classic set of growth pains" encountered by early adopters as they grow to

be large companies, he said. Amazon will need to take a "more controlled approach to software architecture" and do "more separation of function between different layers of the architecture. There never is an easy time to make those changes," he said.

One challenge, for instance will be solving a "contentious" middleware issue, since the company now uses software from several vendors, according to Pachmeler

"Moore's Law is not going to save us anymore," she said. We're going to have to get smarter about the way that we use our systems, not just increasing [capacity and availability) by steroids."

Continued from page 1

"I was expecting a ho-hum quarter. I was not expecting a lousy outster," said Bill Epifanio, an analyst at New Yorkbased I.P. Morgan Securities Inc. Combined with Connors' bleak growth outlook for next year, it makes for a "double whammy" for a stock that's already under a cloud because of

the antitrust trial, be said. industry analysts confir that the commercial PC market is seeing some saturation. One user, Shellie Sommerson, business systems manager at the sman fournal in Salem Ore., said her PC spending had slowed a bit this year because the company bought a lot of PCs in preparation for Y2k. Framingham, Mass,-based In-

ternational Data Corp. (IDC) is predicting single-digit sequential growth for U.S. commercial PC sales for the rest of the year. IDC analyst Roger Kay said be expects sales to rebound when Windows 2000 takes off late in

the year, however But Rob Enderle, an analyst at Giga Information Group Inc., said Microsoft "botched" the launch of Windows 2000 by staging a big event before early adopters could show successes. They will be paying for that for the next six to 18

months," said Enderle. Laurie McCabe, an analyst at Summit Strategies, said she thinks companies will be buyine less PC-centric software not fewer PCs. Enderle agreed. He said Microsoft's Office 2000, especially, is at "extreme risk" from the move to Webbased, often free applications.

Microsoft has a history of chilling investors' expectations for coming quarters. But analysts said this approach makes little sense when its stock is already under pressure. Analysts worry Microsoft

won't be the only one to suffer. \*Every time Microsoft gets walloped, you can expect collateral damage," Epifanio said. Though Microsoft reported 23% growth in both revenue and net income for the quarter,

earnings per share would have missed consensus estimates if not for better-than-expected in vestment gains, said leff Maxick, director of research at Madison Securities Inc. in Chicago, P.

### is \$5,000 to \$10,000 per month. For example, a manufactur-Continued from page 1

Amazon order reached Ernie, the sole Sun Microsystems Inc. SPARCstation V box that served Amazon's Web site. But they might have gone deaf if they had left that system in place. The next year, they relieved Ernie in favor of a Digital Equipment Corp. Aloha 2000 and later added another one because it was "the biggest box out

there," Rachmeler said. \*By changing vendors, we were going to give ourselves more room to expand in the long run," she said. By the spring of 1997, Ama-

you eased the strain by substituting two DEC 8400s as it Issunched the second version of its Web site. More significant architectural changes would come later as the company made plans to link up with maior portals and to add features such as recommendations and one-click shopping

"We were scared," Rachmeler said. "We were about to drink from the fire hose, and we had no idea the kinds of traffic that we were going to get from those situations." The solution: It removed

one of the DEC 8400s in favor of redundant DEC 4100s serv-

ing Web pages at the front line. "What it allowed us to do is expand the capacity of the Web site only by buying new machines. Instead of spending human power to get more capacity, we could simply use our credit cards and increase the front line." Rachmeler said. noting that Amazon had fewer than 30 IT staffers at the time. "It also meant that any one of these online machines could

### nazon.com s Launch Time Line A THE U.S. book site

reh 1867: Web size Version 2 pt. 1967: Site Version 3; tal link-up deals wit oo, AOL and Excite

Nov. 1967: Site Version 4 no 1990: U.S. music st. 1980: U.K. and German

w. West U.S. video

1900: U.S. auctions dy 1960: Thys, electronics st. 9000: aShops mail for 1980 IIK and Gar

problems, and the store would stay open," Rachmeler said. But Christmas '97 was coming, "and that shouldn't have heen a surprise, but it was," she said. The taxed database server was already running on the biggest machine available, so Amazon couldn't put in another box. Instead, a SWAT team launched Project Database Headroom to squeeze out 30%

more performance. "We would so to executives of the company and ask them not to run their reports during the day. We would tell the financial teams not to execute billing programs during neak periods of time. We sent out messages to the entire Amazon staff that if they had programs accessing the database, they needed to talk to this SWAT

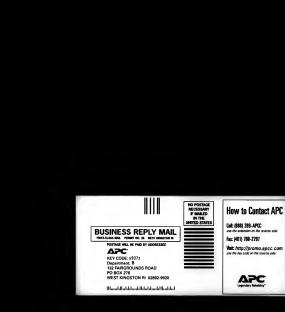
### Big Iron for Christmas When the Christmas rush

was over, Amazoo brought back its idle DEC 8400 as a hot standby, and then over the next two years began cracking off pieces of the main database to run on separate machines. In

team," Rachmeler recalled.

time for last Christmas, staffers brought in big iron - a Hewlett-Packard Co. V-class machine - to anchor the system. They also split up the





# From 20 to 200 servers, only a scalable Power Array™ gets reliability done *right*

### APC Symmetra® Power Array\*: N+1 redundancy for 100% uptime

Data access is critical to both your Internal and external customers. Now that applications like messaging, Web integration and E-commerce are deemed mission-critical, losing power to your storage and processors is not an option.

You need to be ready for the unexpected. APC's Symmetra Power Array is the single most highly evailable UPS in the marketplace. Since power problems are the leading cause of downtime, make sure you're prepared.

Consider how Symmetra protects your business:

 N+1 redundancy design assures continuous availability –
 If a module fails, the others instantly begin supporting the full load.

 Scalable power – Additional 4 kVA modules can be added to expend to 16 kVA of power capacity (4 unit frame is expandable to 8 kVA)

 Serviceable while load is up and running – Additional bettery modules increase runtime and all the modules are not swappable, meaning no downtime.



New you can easily menage power to your systems. APC MentorSwitch<sup>\*</sup> in year communications and computer racks can save you time and mesony by helping your staff to manage power preactively.



PowerView" is a band-held control ponel for netwo administrators that configures and controls UPSs in rack, computer room, and distances environments.



7/or ha corrup

"Not having a Symmetra in place would have resided in host data, corrupted hard drives and lost time to recover. The Symmetra system has more than paid for itself during this one oldage."

APC is a leader in the field of power availability. Our technology grows with your business and can help power protect your

new applications as you roll them out. Contact APC today and

APC Symmetral Power Array" was





Enter to WIN A FREE Symmetra Power Array, Register now. At enterts will receive a FREE Power Availability KA. To order: Veilt http://promo.apcc.com Key Code \$9372 • Call 888-289-APCC x1511 • Fax 401-788-2797

# When It Comes T eTrust Can Prot



It's that sinking feeling in your stomach. That look your face makes every time you read a story about a dissertors composale security breach. It's that negging feer that won't go away no matter how many times you tell yourself there's horning to worry about. Because there is, security is the number or concerned of every floretissional for good reason. The good news is that there's a proven souldier you can the

### Without Bullet-Proof Security, Successful eBusiness is impossible

The only thing bigger than the opportunity that

comes with putting your business on the Web is all the risk that goes with it.

Undetected attacks can strike at any time, from anywhere, in a mind-boggling variety of forms. Most sites can't even track every attempt. And new threats are developed every day, all over the world.

Without the right protection, eCompanies risk losing everything: data, customers, revenue, and more.

### A Simple Solution To Your Most Complicated Challenge

Online business through eCommerce, corporate intranets, partner-to-partner transactions



on extranets and websites, as well as their supporting enterprise-wide assets—all need to be secured. Protecting the integrity and

availability of intranet information is critical to all organizations

Web-enabled business applications open up all of your backend and legacy systems to the world.

Unfortunately, in the race to become Webenabled, secu-

rity has taken a back seat. IT managers often give themselves a take sense of security with a standalone or partial security southor. They forget that security is only as strong as its weakest link and that eCompanies need an integrated and comprehensive security solution that provides best-of-breef incrionality.

# e Trust Security Suite • Access Control • Atteninstration • Single Saim • Enerval • Content ling + t+ • Intrus + 0 Direct • Policy from -d • Ander

Vittus Process to
 Empyring
 Dor for
 OCSPro
 Antovoro

back seat. IT managers selves a false sense of



# o Security, Only ect You Like This.



### eTrust Enables eBusiness

eTrust provides all the security solutions an eBusiness needs: COMPREHENSIVE — eTrust covers all security functionality, from the browser to the mainframe, ensuring complete security in today's highly complex environments.

BEST-OF-BREED — eTrust solutions offer best-of-breed functionality across the board. INTEGRATED — all eTrust solutions are designed and built to work together seamlessiv and deliver the highest level of

EASY — eTrust solutions are easy to use, deploy, and administer, ensuring any environ-

ment is secured quickly and correctly. Your training costs will go down as your security goes up.

MISSION-CRITICAL — eTrust solutions offer the scalability, depth, and robustness fastgrowing and successful eBusinesses need.

### eTrust is Open And Extensible

eTrust allows you to leverage existing investments in security solutions — you will never have to start over or convert anything. And eTrust can be implemented one function at a time or all at once — it's your choice. And since eTrust is built on the Unicenter

Not of the entropy of the left you snap-in other eBusiness management solutions as you grow and your needs change. eFrust is built on a standards-based, open infrastructure, so it's always easy to plug in any other standards-compliant products or solutions.

### eTrust is Trustworthy

eiTrust is not only backed by the world's leading security software company," it is also complemented by a complete set of outcome-based service offerings, including assessment, implementation, audit, as well



as complete security management outsourcing. CA Services<sup>34</sup> stands ready to make sure your implementation is fast and trouble-free. If your company is making the difficult transi-

If your company is making the difficult transition to an eBusiness, you owe it to yourself to find out more about the security solution more eBusinesses trust.

For more information, call 1-800-377-5327, or visit

eTrust

Backed By The #1 Security Software Company

integration

# Feds to Step Up IT Security Research

Suspects potential Trojan horses, common trapdoors from hasty Y2k repairs

HE FEDERAL ROYernment intends to make finding Trojan horses and trapdoors on com

ns a "research oriority," since the risk is one that some companies may be facing as a result of hasty year 2000 repair work That was the message deliv-

ered by Richard Clarke, national coordinator for security, infrastructure protection and counterrerrorism, at a U.S. Commerce Department-sponsored conference on information security last week. Clarke said many companies

problem and in the process of doing "quick work" may have allowed malicious code to be implanted in their systems A Troign borse can be as little as two lines of code buried in millions of lines of programming, said Clarke, "Ewo our best people have difficulty

finding a Troisn horse or trapdoor," he said. Trapdoors can he used to main unauthorized access into a system The Clinton admir is seeking \$1 billion for information security research and development projects in next

year's budget and intends to

coordinate its efforts with

those of the private sector "so

we won't be duplicating what



Richard Clarke assures that unity research is a priority

formation technology) industry will be doing on their own," The security conference was aimed at corporate board members and auditors - the people who oversee information technology management - to improve information security so as to avoid the risk of damage to the national econo my. The conference was held with the help of several profes sional auditing organizations. Auditors are being targeted

by U.S. officials to help raise information security awareness because of their unique roles in corporations: They interact with the companies boards of directors and can question whether an enterprise is addressing its information security issues

"We can cajole the private sector to do the right thing. You can actually scare them to do the right thing," said John Podesta, White House chief of staff, at the first of a series of six conferences aimed at top corporate management. The conferences are being sponsored by the U.S. Commerce

Critical Infrastructure Assur-Podesta also said any solu-

tions to information security problems must be addressed by the private sector. Regulation, which is widely opposed by industry trade groups, won't work, he said, "Our policy is to support industry, not to overregulate it."

that we had trouble transmit-

ting via modem," Graceffa said.

"The odds were probably

against us that something was

going to happen. We didn't

lose anything; we just couldn't

DiSabatino is a freelance writer

present it in real time."

in Lynn, Mass.

**HP Touts Imaging** 

Odd as it may sound, Hewlett Packard Co.'s CEO said she thinks printers are boring.

That simple beige box is not really exciting," Carly Fiorina told an audience at an HP event here last week. Even after shipping more than 150 million hoxes, she said, the com pany can make a lot more moncy in more interesting ways through building an infrastructure for printing and imaging services for information techpologists and consumers

For example, Federal Express Corp. in Memphis recently announced that its FedEx interNetShip service can now print shipping labels on low-cost ink-jet printers. whereas such labels were necviously restricted to more expensive laser machines.

Karen Rogers, managing director of the FedEx Express Web site, which delivers the service, said, "These printers are everywhere. Every business has them."

Rogers said that the service grew more than 250% in the past year and that in February. the company issued 2 million shipping labels on laser printers, primarily at corporate sites. She didn't speculate on how the ink-iet devices would

affect demand. Although the FedEx service can use competitors' products, such as Torrance, Calif.-based Epson America Inc.'s printers, "HP is our printer of choice," said Rogers.

"Carly is saying that HP has to move away from a product focus to an Internet focus." said Marco Boer, an analyst at IT Strategies Inc. in Hanover. Boer said HP is building an

infrastructure that relies less and less on the PC, which could be trouble for Microsoft Corp. and Novell Inc., whose network operating systems lack the sophisticated outputmanagement capabilities HP is ing into its new Internet

# woke up too late" to the Y2k the corporations and the lin-**Chips Keep Tabs on Runners**

But fail to match

the human eve

When Fatuma Roba's foot slammed down on the finish mut in the Boston Marathon last week, a computer chip laced onto her sneaker recorded her finish time as exactly the same as Irina Bogacheva's. So judges turned to videotape to conclude that Bogacheva's erso crossed the finish mat first, giving Bogacheva the second-place slot, ahead of Roba. In fact, the same thing hap-

pened among the top three fin-ishers in both the men's and en's races. So in the end, although the maruthon's organizer, the Boston Athletic Association (RAA), used the most up-tote technology, the human eye decided the day's dramatic ishes in the 104th running of the marathon

doctors with quick access to information on the rungers along the way. "That could not have come

together without the Internet services we provided," said Jonathan Cohen, a spokesman for Great Neck, N.Y.-based Ap pliedTheory Corp., which with San Jose-based Cisco Systems Inc., provided the Internet connectivity that allowed runners' whereabouts to be

tracked during the race.

The BAA has used computer chips to time runners since 1996, when the race attracted a record 38,000 entrants. The chip, manufactured by ChampionChip BV in Nijmegen Netherlands, was first used in a major race in the 1994 Berlin

This year, there were 17.813 ers and 65 entrants in the wheelchair division and handcycle exhibition. Each was assigned a black chip that corresponded to his bib number. Mats along the race course read the chips as the participants went by sending the data to the marathon's intranet and then to its public Web site The chips also stored medical information about the entrants. Each time a runner came in for medical treatment, his visit and vital statistics were available for family and

friends to view on terminals at spectator kiosks. Phil Graceffa, the BAA's race technology coordinator, said the flow of data to the Internet was "seam-

less." "In one case, someone's chip must have fallen off, but [he] still not [his] time because (be) was one of the leaders," Cohen

said there was a problem with the transmission of data at the 15-kilometer mark. That glitch was due to noise on the phone lines. "Both phone lines were so dirry?



# With the SAS\* Intelligent Warehousing Solution

Trim costs.

Mow down barriers to timely reporting.

And still keep your enterprise motor running in high gear.

When Briggs & Stratton installed SAP AG's R/3 for enterprise resource planning (ERP), it said goodbye to most of its legacy systems. Problem is, if lost a robust way to generate customized reports. That's when the world's largest manufacturer of air-cooled gasoline engines called on SAS Institute.

"SAS Institute stepped up to the plate for us. SAS helped us craft a reporting landscape that provides the thousands of custom reports we need to maintain our competitive advantage."



"The SAS Solution is simply more accessible—and far less costly—than ERP contract resources. Deploying a world-class operational system in conjunction with a world-class information system provides the opportunity to exploit each at its best."

-- Grant Folking project manager for finance and controlling

Just like

Briggs & Stratton did.

Service whole aters, and a tree CD from

ıll, Wells Fargo Services Co

Microsoft





# Companies Skittish About SAP AG's Retail Application

After customization help from vendor,

users hope to reap product's benefits

O-ANN STORES INC. a \$1.4 hillion chain of fabric and craft stores, has started running its backoffice operations on a retail version of SAP R/3 making it just the sixth

U.S. user to go live with the Les Duncan, CIO at Jo-Ann Stores, said the Hudson, Ohiobased chain turned on SAP Rerail in March and is now using the product to process 2 miltion sales transactions from its more than 1,000 stores

each day. But the \$30 million project wasn't a simple matter. Jo-Ann Stores originally hoped to start using the retail applications last August, but Duncan said the schedule had to be changed because of performance prob-

lems with the software and the onset of the holylay session He added that the retailer also had to do custom develorment, with help from SAP, "to fill some hig gaps" in the software's ability to keep track of seasonal products and manage

pricing and promotions. lo-Ann Stores isn't the only user that's still finding functional holes in SAP Retail. which became available in the U.S. three years ago. John Atkins, vice president

of information technology at Tractor Supply Co. in Nashville, said the 280-store farming supplies chain has had to enlist SAP's help to design a series of work-arounds since it began using an earlier SAP Retail release a year ago. "Things are smoothing out,

Atkins said. But he added that Tractor Supply is holding off on an uperade until it sees more users successfully going live with the current version of the retail software Dave Boulanger, an analysi

at AMR Research Inc. in Boston, said SAP has stabilized SAP Retail's performance and signed up some "marquee accounts' such as The Home

Depot Inc. in Atlanta and OfficeMax Inc. in Shaker Heights. But from

functional perspective. SAP is a still trying to catch up to retailoriented application vendors as Minneapolis-hased Retek Inc., Boulanger said, Key features like merchandise planning are still "fairty young" in SAP Retail, he noted.

products. Only warehouse management and sales audits are still performed by other systems, Duncan said. lo-Ann Stores, which got consulting help from Burlington, Mass-based Siemens Business Services LLC, replaced a half-dozen homegrown main-

can said he had expected start-

up problems as one of the first

users to install SAP Retail But

the project still came in on

hudget, he said, and the com-

pany is now running most of

its corporate-level retail opera-

Sales data is uploaded from

each store at

night and trans-

ferred into the

SAP system,

which then han-

dles tasks rang-

ing from sched-

uling inventory

replenishment to

tions on the software.

frame applications with the new system. Expected benefits include better inventory accuracy and the elimination of manual processes for checking invoices and counting products at stores. Duncan said He added that the earlier

performance problems have been resolved by SAP - a fix that Jo-Ann Stores made sure was in place by running tests in which full daily loads of sales transactions were processed by the new software. That process was completed in February, prior to going live.

Widespread Use Other users that are now

running SAP Retail in the U.S. include PetSmart Inc. in Phoenix and Reebok International Ltd. in Stoughton, Mass. SAP executives weren't available to comment in detail on SAP Retail. But the German vendor said more than 200 bought the applications

issuing purchase orders for new companies worldwide have An SAP snokeswoman added that the seasonal-alloca tion capabilities developed by Io-Ann Stores have been built into the latest version of SAP Retail. Other work done for Jo Ann Stores will be included in future releases, she said.

### and we're beginning to see the Tax Sites Slow Due to Last-Minute Filers

IRS also affected by flood of latecomers

Another toy sesson has con and gone, and this year's was the most electronic to date. And although most people were able to access the various tax-related Web sites, it took them longer to do so as the filing deadline approached, according to Service Metrics Inc., a Web-site performance measurement firm in Boulder.

Service Metrics said that at least 98% of all visitors who visited the Web's L3 most popular tax sites between April 7 and midnight April 17 were

able to access those sites. However, the difference in time that it took filers to download the home pages of the various tax sites varied widely. from a fast 1.8 seconds at the

Yahoo Tax Center Web site to a | April 16, Service Metrics said, much slower 7.98 seconds at H&R Block Inc.'s TaxCut site. A TaxCut software package is offered by H&R Block to customers who experience de-

lays at its primary tax site and want to download the software to their PCe From April 7 to midnight on

load H&R Block's home page. but 8 67 seconds for the period from April 7 to midnight April 17, indicating that as the deadline to file federal taxes loomed, more people hopped online to access the site. Linda McDougail, a spokes-

SecureTex	2.82	99%	
Yahon Tax Center	1.8	99%	
1040.com	3.4	99%	
TaxCut	7.98	58%	
H&R Block Tax Center	8.67	96%	
TurboTax	4.71	99%	
Quicken Taxon	4.04	98%	
Cliet Tax Software	539	98%	
IRS Taz Contor	7.05	96%	
MS Tax Forms	4.82	98%	

woman at Kansas City, Mo-based H&R Block, said 6 seconds didn't seem very slow and questioned whether the sites monitored by Service it took 6.45 seconds to down-Metrics offered the same information at their Web sites. "It all depends what you have to download," she said, "I don't know if we're comparing apples and oranges or apples

and apples." Service Metrics spokes woman Deborah Jones said having more information to be downloaded is part of what slows down sites. "We measure how long it takes to download the Web page as a whole and then bow long it takes each ele-

ment, like a graphic, to downlond" she said Jones said the sites that load the slowest could learn from the sites that load the mickest. "The Ifest sites! know that

customers aren't going to stay around and wait 6 seconds for a site to load, so they don't offer large graphics," she said These [quick-loading] sites have figured out how to nline their sites."

Over at the Internal Reven Service, through midnight April 17 it took visitors 705 seconds - up from the 5.34 seconds it took from April 7 to midnight April 16 - to down load the home page and 4.82 seconds — up from 3.55 seconds — to download tax forms Service Metrics said 98% of all visitors could access the site.

William Quinn, a Service Metrics spokesman, explained the high availability. "These sites have been doing this for a couple years and have been able to work out any bugs' they may have had, he said. "In addition, there aren't hundreds of millions of people hitting these sites all at one time, like there were at Christmas' which caused sites to slow

down or crash completely. An IRS spokesman said that on Anril 17 its Web site had Al million hits - more hits than it recorded during the weeks of fan. 3 to 9 and March 6 to 12 when it recorded 40 million hits each week, and Ian, 17 to 23, when it recorded 38 million

# mpulse

d construction of the second o

Self-on Self-on the control of the c

i-business



# Inf@rmation Builders

www.informationbuilders.com/i-business 1.800.969.INF0



Qwest\* Q Port; No limit networking. C1 person a network that delivers the bandwidth you need without it costing you a fortune. Qwest O Port can make it but you SE meet any O Port gives you Frame Relay and a simple migration path.



to IP for one flat monthly fee. Which means you can bank on bandwidth without blowing your budget. To find out more about OPort, wat qwest.com or call 1-500-RIDE-OWEST (1-800-143-3735). Because from today, there will be no limits



# NEWS

# Microsoft's Nielsen Describes World of Web Services

Also addresses company's lessons from Linux

Taking over a slot generally reserved for his company's chairman, Bill Gates. Microsoft Corp.'a Tod Nielsen last week delivered the opening address at the Comdex/Spring '00 conference in Chicago. Later, Nielsen, vice president of Microsoft's platform group, spoke to Computerworld about

the industry's move toward Web services.

Q: I counted three Linux jokas in your keynote speech. Does that mean Linux is the main competi-At I wouldn't say the competitor. I think Linux is certainly something we pay attention to. My background in Microsoft is [in] working with the developer community, and so anything that gets the developer community's interest. I want to understand.

Q: From your perspective, what is the Linux value proposition and how can you respond? A: It isn't what neonle commonly think [that it's] because it's open-source and you can work on the source. It's rare to find a developer who makes any source changes to the Linux code. What they like is its suitability to (certain) tasks You don't see them using a rich set of services building a rich set of applications. But if they want to have a fast, simple Web server or a special embedded appliance, and they want a simple operating system, it does that task

pretty well. And it's Unix-based, so

people who have the Unix bent are

devices with just parts of the syste they need?

fragmentation. We don't want someone's code to break when it moves from

Q: What does the concept of Web servi-

comfortable using it.

A: This idea that the Web will become a provider of core services that can be used by consumers or developers in applications is going to be key to the Web's next level of growth - so it doesn't just stagnate. I think it's a hune opportunity. But in order to realize that opportunity, you need an integration technology.

Going forward, the next generation isn't going to be about building a dot-com but about connecting the dots - how you bring them all together over this core XML framework.

Q: What's the differe services and the Hext Generation Windows services that Sill Gates has talked about? A We think our platform will be the best place to build these services. But today you can go to any Web site - you can so to Sun com and stick on XMI

interface on one of their applications and it can be [called] a Web service. So it doesn't have to be Windows in order to be a Web service.

While Brown sarreed that most Microsoft executives couldn't afford to take vacation time, he suspected that the move could create pressure for companies to offer the same perk, "People at least like to have the sense that they can do what they want," he said.

Kevin Holt, vice president of buman resources at Predictive Systems Inc., a New York-based networking consulting and integration firm, also said that Microsoft's competitors may follow its lead in offering unlimited time off to senior employees.

"No technology company can be the only one not offering a certain benefit."

Brown said the enhancements may he part of an internal public relations effort AT A QUANCE stemming from the U.S. Incentives Department of lustice's antitrust case against Mi-

> "I'd he doing everything I could to keep everyone because Judge Jackson's findings were pretty harsh," he said

A Microsoft spokeswoman said the incen-

tives aren't related to the case. "Microsoft is constantly looking at ways to make sure it is competitive,"

said the spokeswoman. She said some of the promotions were part of a restructuring [ News, March 31]. Microsoft's benefits could belp it pete against start-ups, said Howard Rubin, a research fellow at Meta Group

Inc. in Stamford, Conn. "Maybe their population is aging a bit," said Rubin. Dominique Deckmyn contributed to this

Q: Will Windows 2000 developers and resellers get the same flexibility to configure

A: What we don't want to see happen is

one machine to the other. We want the Windows experience to be a positive, valuable, reliable one. So we probably won't allow willy-nilly modifications. But that said, we're going to make sure that we provide the best technology for the task, and that developers will have the choice to install various compo-

SAS e-Intelligence

www.sas.com/cw/e-head

# Microsoft Boosts **Worker Benefits**

Unlimited vacation time could spark IT trend

Microsoft Corp. may have fanned the flames in an already heated war for talent in the high-tech industry Some recruiting and rete

perts said the company's decision to said Holt. offer unlimited vacation time to seniorprompt other high-tech employers to do the same. Last week Microsoft

confirmed that it reward- Microsoft's new benefits ed some employees with a for some employees broad range of incentives. It's granting some execu- a horsesed stock options tives and software engim Promotion to vice president neers as many as 200,000

for 30 managers shares of stock, promoting ■ Universed securiors type 30 managers to vice presi dent and giving unlimited vacation time to top executives The vacation perk raised the most eyebrows among industry observers. Offering unlimited vacation time could

"fundamentally change the landscape of henefits," said Dudley Brown, managing director at recruiting firm BridgeGate LLC, based in Irvine, Calif. Analysts were skeptical that any senior staff as Microsoft could take more time off. "It's probably career suicide to take advantage of it," said Kazim Isfahani, an analyst at Giga Information Group Inc. in Norwalk, Conn.

# INTRODUCING THE E-BUSINESS SERVER THAT ACTS LIKE A MAINFRAME



### What is Windows 2000 Advantage? Windows 2000 Advantage is the pertnership among Microsoft.

Company and Computerworld Enterprise Business Solutions to inform IT Needers about Windows NT and Windows 2000 technoogy by providing firmsty, useful information — in print and onthe — for planning and deploying Windows NT and Windows 2000

Compaq services and solutions.

### Online This Week

Windows NT: Still alive and well Windows 2000 has been halid by Microsit as a must have uppaids from its precisioned. Windows NT 40. With the furry of activity suncturing the recently-released Windows 2000, NT users are wordering what the future holds in store for their. Should take younger with the NTI's rest iteration or just step put? Read our asky for the arrest hereton or just step put? Read our story for the arrest.

### The vital Exchange 2000 Link: Active Directory Connector

A link is required between the Eschenge 5.5 Directory Store and the Active Directory to enable users attached to the different versions to communicate with one another. This first is accomplished using the Active Directory Connector.

### Microsoft Windows exec on worlding with Compaq and marketing Windows 2000

human resources and formerly vice president of marks ing for the Windows division, has a lot to say about wor ing with Compang, reignaling users from Windows NT to Windows 2000 and the weelth of advantages the near operating system has for mobile users, in this interview who dissusses these tools and more.

Will be enhanced assortify forms in Whicheve 2000, such as PKI, IP-Des and Kerberres, providing the state-of-ert assortity to most your particular steedo?

Cost your vote now at

wans. Windows 2000 Adventage.or

heck out
to current results:
tase: 185 >

Yee - 37% 48°c



Windows 2000

### Compaq ProLiant-based Windows 2000 system smashes benchmark record

By Jacqueline Emigh
Compagin newly announced "sGeneration" Internet processing strategy got a big boost lest morth when a point, 12-node Compagin newly posses of the processing strategy got a big boost lest morth when a point, 12-node Compagin Prud, and 8000-based system unnounly Windows 2000 and SQL Server 2000 Enterprise obliterated the former TPC-C benchmark set record by some 67%, processing nore the 78/2000 brunder cluster (conting a femiliary set of the 18/2000 forms or minute.

TPC-C measures a system's performance on a mix of five types of concurrent transactions. These include new order, payment, delivery, order status and stock level transactions.

Compag's price/performance was also unparalleled, as the record-breaking system registered a rating of \$19.12 per (pm-C), a score 2.5 times greater than the closest number-up. The type-C metric measures only the rumber of new order transactions assuciated by the system per minute. The reason for this is that new order constitible the most foreigneth type of transaction in that real world. They also represent the most complex transaction rating the most complex transaction.

actions.
In order to determine
the price/performance
number, the price of the
entire system is divided by
the tipm-C metric. For
example, if he price of a
system is \$859,100, and
the tipm-C metric equals
1,582 per tipm-C, the
price/performance number
equals \$580 per tipm-C.

prosperiormance number equals \$500 per tym-C. Speeking at the recent Windows 2000 launch, Microsoft Chairman Bill Gathes said of the new TPC-C champion. "It could handle all the e-commerce done on the Web during the last year in two dams."

year in two days."

Generation is based on a three-phase strategy that feverages Windows 2000 and Comparis dedication to meeting the rapidly axpaining needs of e-business customers who must support massive numbers of usere simultaneously accessing huge amounts of data.

Phase 1 began with the launch of Compaq's 8-processor ProLiant servere in August 1998. This phase also included the incorporation of leading-edge technologies such as multierrabye storage, hot-plug carobilities and lights-out.

"This is more than just a cool benchmark. It's a major proof point for an architecture that will successfully address the dot comphenomenon," predicted Compag's Vince Gayman,

impaq's Vince Gayman, director of marketing for the High Availability Busi-

nes Segment.
While Gayman says not every compeny is ready yet for the record-brashing 12-node cluster - which consists of 96 Pentium III Xeon processors working at 550 MHz - he notes.
There are meny cus-

demanding The requirements. For a some companies, whe balls raffic for the 200 Chimitimes season in projected to be three times higher than least season's, and you don't necessarily have to buy a big architecture right away. We've now demandated that, even if you start with a amaliar system, you'll be able to scale not all fire as you need to you've the start with a smaller system, you'll be able to scale not all fire as you need to you've the start with a smaller system, you'll be all the start with a start with a smaller system.

Microsoft

# **ADVANTAGE**

### ▶ Case study

# VirtualBank leading online banking with Windows 2000/ProLiant combination

By Nora Isaacs in the financial sector, secunty and speed are everything. The decision-makers at VirtualBank, a Florida-based

Internet banking compeny, knew that if they didn't have three key elements they were in recolder. Using Compag's Prolliant servers, the bank recently regreted in some department of the critical applications from a Windows NT platform to Windows NT platform to Windows NT elements security and speed, but allow improved scatability and performance and of the essential elements.

for becoming an industry leader in ordine benking. "The platform you choose is a huge decision for any new Internet company," says VirtualBank CEO Rony Brown. "It's our single largest capital outsity. Windows 2000 has the same reliability and scalability as other platforms.

at half the cost. Choosing it was an easy decision," WithusBlank's schinology allows consumers to have access to all their financial accounts and transactions online via a single interface 24 hours a day, seven days a week. The desire to provide such right, secure, accessible and personitzed service.

has driven the bank toward Windows 2000. This migration began in carnest last December, when VirtuatBank decided to test Windows 2000 to see if it would deliver the kind of



enhanced performance they wanted. After running Windows 2000AS RC1 and RC2 in a test environment parallel with NT 4.0 server. The bank found thet Windows 2000 is significantly more stable. They also discovered that Windows 2000 allows them to service more customers without enhancing the hardware. Another benefit includes the abirty to reduce bottlerecks.

by staling up. Windows 2000 also provides VirtuelBarik with high Web server availability and the fissibility to add servers to the network for pusposes of load balancing. In addition, Windows 2000 delivers is noticeably faster performance and was easily integrated into the Kerberos ascurify scheme, an Internet standard. Given its intent to implement Windows 2000, the bank's decision to go with Compaq was an easy one for this up-and-coming financial player.

"Compaq brings the most advanced intel-based servers available on the market." says John Studdard, chell technology officer at Virtual-Bank, "The combination of power and modulanty in Pro-Liant servers allows us to instantly adapt to changing server requirements. Pro-Liant comes in a wide array of configurations from commodity-based web servers up to 8-way Enterprise Mission Critical servers \* 9 For the full text of story, visit

The Web Magazine for IT Leaders
Implementing Windows NT and Windows
2000 with Compan Services and Solution



### Windows 2000 Terminal Services provides flexible server-based computing

By Robert Williams
One of the significant benefits of Whitdows
2000 Server ventions is the inclusion of a greatly enhanced Terminal Services capability. This sochrology permits the Windows 2000 destrop and applications to be used on a wide variety of systems including Windows PCs, Windows P

and even non-Windows disatops.
"Terminal Services is an Important complementary sechnology for the entirely sechnology for the entirely sechnology for experimentary sechnology for experimentary sechnology for experimentary sechnology and experimentary sechnology and experiment. All dates proceeding, advances and expellication secucion is done on the server. This provides greater fissible in the determinat of

tone on the server. This tovictes greater flashiy in the deployment of pplications to Windows and non-Windows deskops affer. Terminal Sertose also provides the idded benefit of server and provides the idded benefit of server and to provide the idded benefit of server idded benefit

remote administration."
Terminal Services is liferosoft's solution for server-based computin support. It represents a significant deperture from the default Win-

Omputing
that assumes the user is operating from a self-contained computer system. Otherwise known as a fat client, this type of system is responsible for application processing, local

mont of the WinS2 user interface. With Terminal Services, all processing is remolally performed on the server. It relies on server-based computing through the use of terminate, Windows CE devices or PCs for

user interface in passed to the thin client where it is local deplayed. As keystrokes and mouse clicks are entered, the are sent to the server for interruption and execution. The server then refrashes the local ferminal screen.

Terminal Services can be used in two difterent modes: for remote administration or as an application server. When enabling Terminal Services, you are prompted to select setween scalination.

remote administration mode. 9 For the full test visit

www.Windows2000Advantage.com



and maker of college auction softk swap estimated at \$444 mil-

### Inktomi Boasts First Profitable Quarter

tions by reporting its first quarterly profit in its second fiscal quarter, which ended March 31. The Fester sh software and technology that helps speed Web browsing las week reported revenue for the secand quarter of \$47.3 million, up 219% from \$15.2 million in the same period a year earlier.

### duecurve Purchased Exec Exodus

erformance management softwa nd services provider Bluecurve nc. in an all-stock deal valued at stely \$37 million. The adnent software from Oak-II.-based Bluecurve will im-rham, H.C.-based Red lies to help busi

### Stratus Win 2k Server Offers Fault Tolerance

ed a new line of fault-tolorant

Windows 2000 servers.
The new Stratus RServer promises more than 98.999% analishing at prices that start at just over \$23,000, said Stove Kiely, CEO of the Maynard, Mass., company, That's at least 80% less than the us price for Stratus' entry

# Online Auctions **Fuel Software Piracy**

Web-based auctions could do more

to curb counterfeit sales, group says

BY LEE COPPLAND THE SOFTWARE & Information Industry Association (SIIA) claimed in a recept report that a great deal of counterfest software is being sold at online

auction sites but simple remedies could curb the problem. The SIIA conducted a review of online software sales on auction sites - including those of Amazon.com Inc. in Seattle, eBay Inc. in San Jose, Excite Inc. in Redwood City. Calif. and Yahoo Inc. in Santa Clara. Calif. - during a fourday period at the end of March

and the beginning of this month. The Washington-based organization found that 97% of the software auctioned was

Hits Lotus

BY LEE COPELAND

opment and support.

product development.

sold illegally. Of the 1,300 online software transactions it monitored, only 138 involved products that contained legitimate software licenses. A similar review conducted on some of the same auction sites last August turned up a



to meet operational and market goals and protect the company's lead in collaboration software. Lotus Notes/Domino and cc:Mail have been domi-

have met increasing competi-

tive pressure from Microsoft Lotus Development Corp. con-Corp.'s Exchange Server. firmed last week that several Lotus will also lose two top top executives plan to leave in sales executives: James Feiger what the company called a executive vice president of "cyclical" wave of resignations. worldwide field operations, The Cambridge, Mass-based and Mike Laginski, senior vice. IBM subsidiary will soon lose president of North America. its top development boss, John Lotus officials wouldn't com-Throckmorton, executive vice ment on the departures. president of mortduide dead-

### Function Moves Last July, Lotus rearranged

Horan will take on the role its organizational chart, placof acting executive vice presiing Throckmorton in charge of dent of development. Pierre Internet applications, commu-Van Beneden will relocate from Paris to Cambridge to nications and knowledge-management product develophead sales, officials confirmed. ment. His management team In February, CEO leff Paincludes Brian Bell, senior vice pows stepped down and Al president of knowledge man-Zollar, a 23-year IBM veteran, agement, who also plans to detook his place

part, and leanette Horan, vice Eileen Rudden, the compapresident of communications ny's senior vice president of communications products, has At that time, officials said the also left the company. Rudden reorganization was undertaken had reported to Papows.

60% software piracy rate Analyst Andrew Bartels at Giga Information Group Inc. in Cambridge, Mass., said auctions provide a new medium through which counterfeiters.

can sell illegitimate software. "The issue with auction sites is that they create another venue - a more fluid, slippery venue - for someone to do this," Bartels said.

### Easy to Remain Anonymous \*Online suctions may in-

crease the potential risk of counterfeit sales because there now is a marketplace where sellers can extract value in a semianonymous fashion," Bartels explained. "It's much easier to sell counterfeit software online than (to stand) outside of a store in a black trench coat saying. 'Do you want to buy the latest copy of Microsoft

Peter Beruk, vice president of antipiracy programs at the

been "no disruption at Lotus" as a result of the executive departures. nant in the e-mail market but

"We have a broad array of talented executives one layer below who are able to rise to CHARCHAT

Lotus spokesman Paul Lathe occasion," LaBelle said. He Belle said last week there has added that executive departures following a CEO change - as when Lotus co-founder Mitch Kapor left in 1986 and

SIIA, said the auctioneers can dramatically reduce pirated software sales on their sites by proactively monitoring the auctions. He suggested that auction sites bar sellers from using terms like backup, CD-R. or compilation CD when describing software for auction "Pirates are lazy and will go where it's easy to sell products," he said.

### Amazon's OK According to the SIIA. Ama-

zon.com monitors sales closely and immediately removes offending goods from its site. The SUA didn't find any illegitimate software auctions on Amazon.com's Web site

The SIIA suggests that consumers take common-sense precautions such as avoiding goods that carry labels such as compilation CD, which indicates that the software has been copied; ensuring that complete documentation is available; and watching out for extremely low pricing

For example, SIIA officials found Corel Corp.'s Word-Perfect Office 2000 selling for \$14.95 on an auction site. whereas the suggested retail price is \$299.95.0

when his successor Jim Manzi resigned - are a "cyclical event" at Lotus, P.

Apple Computer	\$1.94B	27%	\$16014	72%
EMC	\$1,828	23%	\$332M	49%
Foundry Networks	\$70M	335%	SIEW	1,325%
EM	\$19.38	4.8%	\$1.56	3.3%
Informiz Software	\$250.9M	10.3%	\$27M	342%
Intel Corp.	\$88	13%	\$3.1B**	52%
Lucent	\$8,3256	2646	\$754M	4196
Mapinio	\$23,47M	30%	\$2.03M	92%
Rational Software	\$190M	44%	\$34.8M	65%
Sybese Inc.	\$227M	9%	\$19.5M**	12996



75% of your profit is coming from 30% of your customers.

Are you giving them your 100%?

DO YOU KNOW DO YOU KNOW DO YOU KNOW



MARK HALL

# More than money

YIDDISH PROVERB observes, "With money in your pocket, you're wise, you're handsome and you sing well. too." The sweetest tunes in the computer industry have long been sung by the surprisingly handsome crew at Microsoft. But lately, Bill Gates and friends can't seem to

carry a tune, and they're suddenly looking skanky, too.

First, Cisco Systems briefly slipped past Microsoft as the top tech company in market capitalization. Then, in the latest yo-yoing of the stock markets, Microsoft took a serious financial tumble, while archrival Sun Microsystems' equi-

ties held their ground. A final indignity came last week in reports that suggest Larry Ellison might surpass Gates as the nation's richest person later this year. If you believe financial strength is important in choosing a vendor for enterprise technology, Microsoft is start-

ing to look less attractive than it once did. It isn't just money, either. Members of Microsoft's choir are beginning to look for new sheet music. Just last week, Carly Fiorina. CEO of one of the company's oldest and best partners, Hewlett-Packard, said she wants to "untether" printers from the PC. And Intel continues to push Linux hard - so much so that it has dropped Windows NT in favor of the open-source operating system for some of its own internal development work.



world as we know it may soon pass, allowing us to return to the calm clarity of one ruled from Redmond. Certainly, Microsoft has the ability to virtually mint money at will through software licenses. For now, as quarterly results released last week prove, it remains a dominant and financially strong giant in the industry. It has a slew of new products for IT to consider. Its Pocket PC technology has the look of a winner. Its upcoming

This current upheaval of the

Next Generation Windows Services is nearing delivery, and its data center version of Windows 2000 isn't far behind. Its competitors still shiver in its shadow Lastly it has more developers in its pocket than anyone else. That's real gold.

So perhaps we'll continue to listen to Microsoft's divas for some time to come. But they aren't looking nearly as pretty as they

DON TAPSCOTT

### Moving toward wireless devices? Run, don't walk!

HEN I SPEAK with companies that are deploying portable wireless devices, their views are consistent: Going wireless is easier than expected, and the payback is large. If you're holding off on using these products to see which devices triumph in the marketplace, my advice is: Don't. It doesn't matter whether your staff or cus-

tomers end up using wireless Palms,

Windows CE units, browser-equipped mobile phones, the snappy, new voice-activated MiPad (multimodal interactive notepad) technology that Bill Gates recently unveiled or some other gadget. The technology exists

to service all these devices simultaneously. Most of these devices will probably survive, since there's an enormous pent-up market for wire-

less connectivity Look at the soaring pop ularity of the revolutionar "i-mode" phone introduced in Japan only 14

months ago by NTT Do-CoMo (www.nt

com). The product already serves more than 6 million happy customers, and that number will top 10 million by year's end. Using packet technology, these svelte phones

are constantly connected to the Internet. You don't have to los on to the Web, as you do in North America. The display screen is the size of a business card, and color screens are available. More than 350 companies have built a vast array of Web sites for the i-mode. Users can receive e-mail, chat, buy and sell securities, download video or songs, swap photos, read train schedules. look up horoscopes, check movie listings and

more. The Japanese are hooked. Sadly, it will be at least a couple of years before the i-mode's constant connectivity feature is available on phones on this continent. But this is no reason to delay adopting wireless technology. since the capability of wireless devices in North America is already impressive.

SAP AG, for example, is adapting the MySAP. com Weh page so that it can be viewed on the screens of Web-browser phones. Each corporate user customizes the screen to make available the information he feels is appropriate - usually time-critical information such as order his-



### NEWSOPINION

tory and product and pricing information. So before visiting a customer, a salesman can call up the status of the customer's account on the phone's screen. He can review the most recent orders and see if any deliveries are outstanding. He can even phone his company's loading dock to see what the problem is

Sure, your salespeople could do the same thing with a laptop plugged into a regular mobile phone, but a mobile phone by itself is a lot cheap er. It costs less to buy, a lot less to maintain and much less to train employees in its use. If the information your field staff needs can be compressed onto a small screen, why pay for anything larger? Although they're still primitive these devices are already proving their worth.

#### ROBERT H. ROSEN

#### In growing global economy, boost cultural literacy

URING THE PAST several years, I met with the CEOs of many of the world's top corporations to discuss what it will take to succeed in the global economy. I kept hearing the same message, and a critical lesson emerged: Culture will matter more, not less.

Contrary to conventional wisdom. technology isn't eliminating cultural barriers. While the ability to communicate with people far and wide at increasingly rapid speeds and in innovative ways may be breaking down geographic and economic barriers, cultural boundaries are

holding fast



tural issues will complicate the global marketplace. American companies, blinded by their technological success, will be particularly susceptible to cultural difficulties. My recent research shows that valuing multicultural experience and developing leadership at all levels

of an organization are the two best predictors of success in the global marketplace. Yet, in a survey of 1,200 senior business executives around the world that I conducted with Watson Wyatt Worldwide, U.S. executives were

less likely than their foreign counterparts to say that multicultural experience matters.

Unless this changes, U.S. companies will be vulnerable. Businesses that fail to understand the importance of cultural differences and refuse to learn to speak the new global language will be

blindsided by the rivals they underestimate The solution to this problem is to develop what I call "elobal literacies." Globally literate individuals and companies see the world's challenges

and opportunities; think with an international mind-set; act with fresh, global-centered leadership behaviors; and mobilize people across national cultures Globally literate individuals possess four distinct competencies: personal literacy (under-

standing and valuing yourself), social literacy (engaging and challenging others), business liter acy (focusing and mobilizing your organization) and cultural literacy (leveraging culture for competitive advantage). These are the competencies every leader must

practice. However, they will be expressed differently around the world, depending on where you live, work or conduct business Given the importance of global literacy in a

technology-driven world, I recommend the fol-# Use technology in globally literate ways. In a global marketplace, technology is the medium through which people conduct business. While technol-

gy accelerates and expands the pace and range of communication, it also increases the chances for nunication. Especially with technology through which you can't pick up on physical or

emotional cues, you must read between the lines and listen deeply for the emotion, tone, context and cultural numces in every communication. u Learn from the best around the world. Each part of the world excels in a different literacy area. Some Asian cultures, for example, teach us about personal literacy through their ability to understand paradox and ambiguity. Latin American cultures teach us about social literacy by modeling how to build relationships in less-organized, constantly changing environments. From European cultures. we learn cultural literacy based on centuries of working and living cross-culturally. In North America, we learn business literacy by building change-ready, technology-savvy, high-performance organizations in a results-oriented culture ■ Use culture as a tool for business success. It's vital to understand how your culture influences how you relate to technology. Americans love new technology; they like quick action and excel at creating new things. They tend to shandon ideas that don't show a rapid return on investment. Other cultures react differently. The Japanese, for example, have been more comfortable with incre-

mental improvements. Adopting these strategies will start you on a path to global literacy. It's a long-term process, and the choice is yours: You can choose to get started, or you can choose to be left behind.

### READERS' LETTERS

If we then fail - well.

necessary to call in the

from ourselves. Not a

very pleasant thought.

A LEX TORRAL-RAS' opinion that we can't al-

low corporate America to determine how we ex-

ercise our legal liberties

There is a very dis-

Frankenmuth, Mich

H J Bronson@

hit a nerve

compaserve com

"federales" to protect us

#### Life. liberty and the pursuit of Internet freedom

LEX TORRALBAS presents a very Limportant concern about Internet service providers' notential censorship of users ("How the Net Endangers a Basic American Liberty," News Opinion. April 3]. His solution. impose their personal or "to ask our leaders to corporate censorship pass laws protecting philosophies upon those our rights from arbiof us who must use their electronic mad to the trary corporate cens ship," isn't yet the best perhaps it will become

As we are all learning, to our eternal dread, government interference in technology, and with the Internet in particular is and always will result in a permanent - and growing - drag on the e-environment. To avoid, or at least postpone, government legislative or regulatory involvement the whole e-community's active self-regulation is required.

Specifically, the e-com munity must ensure that its members resist the

tween government and business, and it's not limsor individual taste. We ited to the funding of must act responsibly and accountably and take The business of gov whatever steps are necernment is the welfore of essury, when they are its people, not its comnecessary to probibit merce or businesses. Ap stop and punish those who would attempt to

plication of the trickledown theory showed most of us that eating peanuts isn't quite as good as eating porter house steaks. I hold that allowing

business to determin the extent and control of the Internet would once again provide us with pennuts and abrogate the siness of government. iel Mauro port News, Va.

#### icrosoft simoly reacted to lawsuit

tHE ONLY hundled attachments I see away are clones of other companies' innovative software ["Users Ques tion Impact of Trial and

edies," Page One. April 101

I would like to see what Bill Gates' actions would be if someone were giving away a Windows 2000 clone bundied with a virus-detection package that cost

The market changes came after the Department of Justice filled its lawsuit. No one believes that those changes would have occurred had the DOI not filed the

WidtleCollectibles.Com Lorain, Ohio

Letters shouldn't exceed 200 words and should be address Computerworld. PO Box 9171.

500 Old Conventions Path. Framingham, Mass. 01701 Fax (505) 879-4643, Inter letteroffcomputerworld.com, in clude an address and phone





#### GEOFFREY JAMES

# Wanna keep your IT pros? Cut the management bull

OOD LORD! According to a recent Associated Press story, even Microsoft is having trouble attracting top programmers, as the scarcity of IT talent reaches truly epic proportions. Statistics indicate there are well over 200,000 IT job openings in the U.S. but only about 25,000 new college graduates

available each year to fill them.

Under the circumstances, most IT managers want to do everything possible to keep employees happy. Luckly, retention doesn't have to cost an arm and a leg because — contrary to popular be-

lief — a high salary is overrated as an incentive to stay put. According to a recent study by management consulting furn Hewitt Associates, IT professionals are often motivated to stay



and use new technical skills, a positive work environment, the ability to start and finish a project and the ability to make decisions. This iso't brain surgery, folks. Everybody knows that creative technical people are happiest when their jobs are interesting and they have a bigger say in deci-

interesting and they have a bigger say in occisions that will affect them and their careers. But there's another side to the equation. It isn't just the challenge that keeps top techies in their seats, it's the lack of the typical corporate bull.

While the Hewitz study revealed that a majority of IT professionals who leave their jobs do so for promotions, more than half also said a major factor in their decisions to leave was the work environment. To put it in plain businesse English IT you want to keep your best people, you've got to cut the half.

There are thousands of real-world IT organizations that are being overmanaged to the point where it's a miracle anyone is still working at any of them. You know what Tu talking about Projects with a manager, a project manager, a product manager, a supervisor, a systems architect and a couple of coders, both of whom are secretly polishing their resumes because they're sick of all these managers stelling them what to do.

And how about companies that trot out a new management fad every year? As one IT professional put it: "We've been reorganized, restructured, re-engineered, rightsized, downsized, upsized, TQMed and MBOed, and if I hear the word empowered once more, I swear I'm gonna scream."

There are even some companies that still require engineers to wear ties. If you want to keep your IT staff happy, let them set their own hours, dress in whatever way they feel comfortable, decorate their work areas as creatively as they like and even play computer games, as long as they're

and even play computer games, as long as they're delivering their projects so thir and on budget. Sure, it's a big change from the way things used to be. The employees have the upper hand, and I hardly know an IT manager who doesn't quake in this boost every time a key player makes a few diagramific noises about histing the road for greener managers with far a return to the band old days of high-tech-layoffic a-plenty, when the shoe was on the other foco. Draw on a. 1

Web partnering

# may be a cure for IPO strategy

TEP INSIDE a typical e-business and you'll find executives seeking funding, working toward an initial public offering (IPO), courring analysts to bolster their stock price or plotting to sell the company. The demand to entice and impress investors has never been as widespread in the technology sector as it

is now. But investors shouldn't drive your e-business strategy, particularly when it means a company is sacrificing customer value to satisfy investors.

Investors might argue that what's good for them is good for the customer. But establishing a company where the goal is taking It public and turning over major profits for initial investors is very different

vestors is very different from building a business based oo a loog-term, customer-focused vision. Consider the recent Wall

Street Journal story about the plan by 14 oil and chemical giants to launch an electronic procurement exchange to reduce supply-chain expenditures. The creation of this exchange, which is open to any oil or chemical company, demonstrates how an industry can collectively leverage the lotternet to radically reduce procurement costs It also radics certain downstream concerns.

Controlling interest in this exchange is in the hands of 14 large corporations. Assuming this venture succeeds, what guarantees do future participants have that the founders won't dominate the exchange? Say, for example, that you run a small oil company that, alone with thousands of other midsize companies, begins to purchase supplies through the exchange. As you dismantle existing supply-chain relationships and expand your use of the new exchange, major investors in the exchange gain significant leverage over you and other small companies. Although the article said no company would dominate the exchange, a small group of the founding members is likely to wield significant board-level control. The company could run up fees, limit supply-chain access.

sell the operation or shut down the exchange. This scenario leaves users of the exchange and their customers open to risks. But there's an alternative to the IPO strategy. The partnering companies could establish a member-owned organization like the one used to launch Visa in the late 1960s. No member or group of members can dominate Visa, and Visa can't be taken over because it's owned by the 22,000 financial institutions it serves. Most important, the primary focus of the member-owned enterprise is to serve all participaots and customers equally, without the distractions inhereot in an investor-driven operation. Building such an organization involves combining chaordic organizing disciplines [News Opinion, Feb. 21), pioneered by Visa founder Dee Hock, with the Unifying Systems Model (USM), created by organization development consultant Hina Peodel at US Partners in Santa Cruz, Calif. (Chaordic organizations effectively leverage or

der and chaos.) In a member-owned organization, founding companies form a design team, draft a purpose and outline a set of principles under which the company will operate. The design team then creates an organizational framework and drafts a constitution forming a legal entity. The organization's design is based on USM bub structures where each hub organizes participants, suppliers and customers into functional or regional substructures. New hubs could form, based on a particular need in accordance with organizational principles. Centralized hubs serve as regional and corporate boards. A participating company could join the exchange by agreeing to and abiding by the constitution - and leave whenever it wishes. No company or small group of companies could dominate or take over this organization.

The member-owned concept isn't restricted to supply chains. Virtual marketplaces that sell or trade products and services, application service providers or other customer-drived enterprises could employ this business model. IT leaders being asked to other information or

costs with industry partners should promote the member-owned approach to ensure that a new ebusiness remains customer- and participant-focused and doesn't cater to investors' whims. Given analysts' recent souring oo technology

Given analysts' recent souring oo technology stocks, this may be the best thing to happen to some of these organizations.



magament consultant d president of Tactical Strategy Group Inc. Contact him at the company of the company or through www.

### Technology Brief

#### ► E-Business: Opportunity Today, Requirement Tomorrow

By Lynne Stockstad

HE UNPRECEDENTED communicate is fundamentally

changing how business is conducted. The change is known as "e-business," and today it represents a dramatic competitive advantage for those companies that either originate on the internet as "dot.coms" or transform themselves from "bricks and mortar" to "clicks and mortar."

But soon, e-business will simply be a business requirement to thrive, if not survive, in an interconnected the transformation of business digital economy. A comprehensive e-business management solution that supports both the emerging computing paradigm and the transformation of business processes is critical to

today's businesses

is shifting from the traditional client/server model to an "anywhere anytime, by anyone" model. Therefore, e-business solutions must suppower of the internet to port secure access through multiple appliances, including network com-

puters, handhelds, smart phones, smart cards, televisions and PCs.

Solutions must also leverage all the computing resources on the network - including the Internet - and must

enable direct businesssystem-to-business-system exchanges through the use of Extensible Markup Language (XML), without any required user

The e-business computing paradigm enables processes, revolutionizing process steps, process participants and their roles. Comprehensive e-business solutions will deliver both process

transformation breadth and depth. A "breadth" e-business managein an e-business world, computing ment solution encompasses all key

processes within a business that can be generally grouped under the categories of Manage, Purchase, Sell and Service. in an e-business world, each category consists of content, interactions and transactions between a business and the constituents within its business community

This community includes prospective and current employees, partners, customers, suppliers, influencers, press, analysts and shareholders. A breadth e-business management solution will transform business processes across all business commu-

nity constituents A "depth" e-business management solution delivers end-to-end transformation within a specific business

process, For example, a depth solution for the process of selling goods and services to prospective and existing customers would not only include a well-designed Web storefront, but also the scamless integration with the e-business back-office engine

With the depth approach, changes such as item pricing, item availability, customer credit history or sales tax calculations can be seamlessly incorporated into the customer's Web shopping experience. Vendors that will emerge as leaders in e-business management solutions will need to deliver both breadth and depth busi-

ness process transformation The delivery method for e-business solutions is also transforming radically. Within the software industry, this transformation is often thought of as a shift from "software as a product" to "software as a service." Delivering software as a service primarily affects pricing and deployment.

Under the service model, solutions are priced according to a monthly or annual subscription fee vs. an upfront lump sum and are deployed through a third-party data center host Instead of the customer's internal network. Data center hosting providers, or application service providers, are building their value proposition around software as a service to dramatically reduce the expense of IT



Great Plains is a leading provider of integrated front office/back office e-business solutions for the midmarket. The company's award-winning products and services automate essential business functions and enhance the strategic value of financial and operational information

infrastructure and personnel. These transformations will require dramatic change in the business management solutions that enable e-business. Today, there isn't a single e-business management vendor that can provide a comprehensive solution that supports the e-business computing paradigm, transforms business processes across breadth and depth and delivers software as a service

However, the leading, traditional enterprisewide business management vendors are best positioned to offer comprehensive e-business solutions in the near term. Why? These vendors already deliver the most complex and critical component for e-business transaction processing - and account for the transactions as well.

Today, e-business represents an opportunity for individual businesses and business management solution vendors. Tomorrow, however, e-business will be a requirement for both to survive - and ultimately thrive - in an e-business world.

#### Integrating Customers Into Your E-Business World

ndustry experts say that the cost of gaining a new customer is six to seven times more than the cost to retain an existing customer - that's a shocking figure

Implementing a customer relationship management (CRM) solution provides a holistic corporate view of customer relationships and data that enables companies to better address their customers' needs and concerns

With an integrated front- and back-office solution from a single source, not only can you have greater accuracy of data without duplication of entries, but you also can ensure consistent and successful support of the solution. This provides you with benefits across the board. Externally it allows you to improve customer value and satisfaction, get better customer response and create higher profitability, internally in allows for a more seamless flow of information, reducing employee

stress and creating a more profuctive work environment. Creating and executing a successful CRM strategy will be essential for success as e-business becomes business as usual. P

Created by:

# The expertise behind 1,000,000 hours MTBF UPS reliability...

...now available in the handy, 12-minute back-up run-time pack.

# BUSINESS

#### CLEANING HOUSE

GMAC the financial services arm of auto giant General Motors, is getting rid of its old systems to make way for new, streamlined e-commerce busi ness processes. The results, says CIO Linda Taggart, are greater efficiency and larger profits. • 42

increase the efficiency of their supply chains. But they're in the minority, as few companies seem to be implementing the guidelines. ) 48 PROVIDING TIME

by the Supply Chain

Council are helping companies such as

GM and Dow Corning

#### OFF FOR DAD CHANGING OF

The controversy over whether British Prime Minister Tony Blair will take paternity leave has sparked an awakening among U.S. companies that don't offer time off for new fathers. And ' high-tech companies, desperate for an edge in the competition for talent, are taking the lead. • 47

THE BEST JOBS

More than two-thirds

of the IT workers ques-

#### THE GUARD After 25 years at Federal that he will retire at

Express, CIO Dennis Iones has announced vear's end, clearing the way for Chief Technology Officer Robert R. Carter to fill his shoes Jones whom CEO Frederick W. Smith called FedEx's "visionary" spoke with Computerworld about his accomplishments and plans for the future. + 42

#### OT WOLE **GO PUBLIC**

Not all information technology firms are swaved by the potential riches of an initial public offering. Some companies, like SAS Institute, have enough cash without going public, while others, such as Infolmage, want to steer clear of shareholder demands. But both Info-Image and SAS have finally given in and announced plans to go public. + 44

#### WFAK LINK IN SUPPLY CHAIN

The benchmarking guidelines developed

tioned for Computerworld's Annual Job Satisfaction Survey said they expect to leave their jobs within the next year. But it isn't about money and benefits. Workers said they want more training responsibility and

#### room to grow. • 54 PATENT FRENZY?

As e-commerce grows more companies are trying to patent the new business processes they create. But some say the new e-commerce patents cover too much territory leaving other companies open to lawsuits for violations they don't even know they're committing, • 58

..... on: Jim Champy . . . . 47



### **PORTABLE NIGHTMARES**

ARE HANDHELDS JUST a little too convenient? As employees take personal digital assistants on the road, it's very easy to lose the devices, possibly letting sensitive corporate information slip into the wrong hands. The dilemma has prompted corporate security experts to take extra precautions to protect company secrets.

### E-Commerce Driving **GMAC Streamlining Effort**

GM could bolster its profits by revamping its financial services arm

BY LEE COPELANG ENERAL MOTORS gy staff members, who have Acceptance Corp been replaced by contractors. (GMAC), the financial services Motors Corp., Detroit-based arm of the world's GMAC is moving headlone largest automaker, is in the into the world of e-commerce. midst of some major house-

Gone is the hodgepodge of 62 internal and external Web sites that the financial services company maintained just 18 months ago. Gone are a number of legacy systems and paper-based business processes.

Gone, too, are many of the

Taggart, CIO at GMAC. "A lot of our systems were older, and historically, they grew up as art, non science

Taggart hires experienced individuals for senior IT roles but uses contract staff elsewhere. These streamlining ef-

ws GMAC to move faster when we have taken in the area of

ry environment," said Linda | forts are part of the company's plan to hone its IT endeavors

while it launches new Webbased initiatives whenever it makes sense to do so In one such initiative, GMAC is piloting SmartAuction, a Web auction site for selling formerly leased vehicles to

dealers. Taggart said that proi-Hiro Mori, an analyst at Auect could save GM \$500 million by cutting the cost of physically transferring vehicles and reducing purchase cycle times. GMAC does more than provide financing to dealers on

vehicle loans and leases. It's "The majority of IGM's revalso the largest commercial caue comes from sales of auto mortgage banker in the U.S. mobiles," Mori said. "But the The company is expanding its profit does not come from sellreal-estate services portfolio and recently acquired an oning automobiles: it comes from financial services."

FedEx CIO to Retire This Year

IT veteran Robert

When CIO Dennis H. Jones started at FedEx Corp., it was a 2-year-old, \$30 million start-up. Now, after 25 years with the \$20 billion, Memphis-based

global shipping giant, Jones plans to retire by year's end. lones, who arreed to stay on to help his successor, Chief

nology Offi-Robert B. Cartez, make the transition to CIO. said he will be looking for new challenges. "I'll probably be retired for half a

lones, who is also FedEx's executive vice president of information technology. "I'm looking for a different challenge with a lot of breadth and depth to it. I have a lot of different options, but it remains to be seen in which direction I go." Company officials said the

lones was also the driving force behind the development of the FedEx World Technolo-

sy Center in Collierville. Tenn, home to the company's state-of-the art IT department. John Fontanella, an analyst at AMR Research Inc. in Boston, said Jones is, in many ways, an IT pioneer. And he's the type of person who will do whatever it takes to get a job

done - a trait that didn't alwars sit well with some of his colleagues, said Fontamella. "He's a very forceful person,

and some people in FedEx were unwilling to make the changes necessary to make FedEx a supply-chain management company," Fontanella explained.

Carter, 40, joined FedFx in 1993 and has more than 20 years of IT experience. As CTO for the past two and a half years, he has been responsible for technology strategy and for developing applications to make it easier for customers to

do business with FedEv FedEx is working on creating a single point of access to its customer support functions, such as customer service,

e-commerce, billing and autransition phase — taking tomation, either online or via these new initiatives and the telephone, said Carter. bringing them to conclusion," 'I'm already active in the he said.

SNAPSHOT

is arrough business, announced lest week that they are toom-

who added that there will be an "auction component" to that service. The Web services are being developed by a number of companies, with IBM as the lead contractor. The sits will be available in late summer to food wholesalers, retailers and distributors across North America.

■ Volkswagen AG earlier this month said if's joining IBM, (2Tech-nologies Inc. in Dallies and Ariba Inc. in Mountain View, Call., to create a global business-to-business digital marketpless to order parts, tools and office equipment orline. Wolfsburg, Germany-based Volkswagen said if wouldn't belie part in this Information statistication trade-engine seed in wouldn't belie part in this Information statistication trade-endings being set up by Front Motors Cony, and Daminat Chryste AS. Laurie Orbo, an markyt at Formation Research his. It Servings, Meers, and she thrinks Volkewagen's decision not to participate in the Big. These and so-contarge is related to the fact that the U.S. Releas! Saide Commis-sion has started to investigate extornalizes—and their collaboration on on

riestplaces - for antitrust collusion

Ill Mombers of Star Alliance, an international airline network unveiled plane to lead the launch later this year of a buyer offere, business to busi-must a commence exchange for the joiled after beduny. The exchange arms to allow participating airlines to buy supplies over the Wol. The safe will be managed and operated indipendently of any jud-vidual sinten. said types Societand, destroy of compression as

#### GMAC Profits · Last year, GMAC posted net income of

\$1.5 billion on revenue of \$20 billion m in the less quarter of this year GMAC reported profits of \$397 million, a 7%. ricrease over the lest quarter of lest year

line mortgage company. Ditech.com in Costa Mesa, Calif. GMAC posted net income of \$1.5 billion on revenue of \$20 billion last year. Those results represent significant pieces of GM's \$156 billion in revenue and \$4.5 billion in profit.

tomotive Consulting Group Inc. in Ann Arbor, Mich., said GMAC is important to GM, and any efficiencies gained via e-commerce will significantly affect the parent co

#### e-commerce and the way we have extended our IT capacity into the marketplace." Jones shift won't affect its operations

internal information technolo-

Like the rest of General

GM's initiatives include

equipping its cars with satellite

and cellular communication

systems and building business-

to-business exchanges with ri-

vals Ford Motor Co. and Daim-

"The beauty of e-commerce

is that it allows us to move

faster while changing our lega-

lerChrysler AG

or customers. \*Dennis has been our IT Carter to fill role visionary, placing us at the

forefront of technological innovations and Internet business applications," said FedEx CEO Frederick W. Smith. lones began his career at FedEx in 1975 and ascended to CIO 10 years ago.

At that time, customers were tracking and tracing their shipped goods via free PCs and proprietary software provided

by FedEx, a system later named FedEx PowerShip. In 1994, FedEx

launched its Web site and became the first shipping company to offer mustomery online package tracking. The company

also brought out two new products: FedEx Ship, a shipping and tracking

software for Windows and Macintosh that is loaded directly onto customers' comput ers; and interNetShip, a Webbased shipping application. "I'm proud of the leadership



And these days it can clog your network with spam and huge attachments. Or disable you with viruses. E-mail exposes your network to a variety of performance problems that can send user productivity down the drain.

Content Technologies enables you to automatically block undesirable e-mail attachments from entering or leaving the network. You'll also protect your company from legal liability by preventing the circulation of offensive e-content.

If e-mail is the lifeblood of your company, rely on Content

Technologies to keep it flowing.

Get a free evaluation copy of our AMAEstrapper softwar along with our

www.contentinchnologies.com/ads # 000-0003

**CONTENT** technologies

### Open-Source Projects Get Done Cheaply

New Web sites give corporations and

open-source developers way to meet

N DECEMBER, Anthony O'Krongly was looking for a workflow application that fit his company's needs. Instead of buying a boxed application or hiring a traditional consultancy to build one he went out on a limb: He posted a request for proposals on SourceXchange. com, a virtual meeting place where corporations can connect with the wild world of

open-source programmers. SourceXchange.com is run by San Francisco-based Collab .-Net Inc., which was co-founded by open-source pioneer Bridoef, one of the creators of the Apache Web server. Collab.Net is one of a handful of emerging online marketplaces that connect information technology people look-ing for resources with opensource developers. Others include Cosource.com (acquired by Westboro, Mass-based Applix Inc. in December) and cotts Valley, Calif-based Open-

At marketing firm Galactic Marketing Inc. in Arlington, Texas, where O'Krongly is vice president of IT, the openource approach to software development resulted in major savings. Hiring a firm to devel-op the workflow application would have cost \$80,000 to \$100,000, he says. Instead, he got the job done for \$20,000 by velopers he never even met Five thousand dollars of that went to Collab.Net, which belped negotiate the deal and provided a reviewer to check code quality. The rest of the money went to a cadre of developers coordinated by Col-

WFTK, will start beta-testing next month and is expected to go into production in June. It will also be available for free from SourceXchange.com.

One of the reasons this type of development saves money, proents say, is that the developers will build on existing opensource components rather than

start from scratch or use com-"We know that developers in the open-source community are some of the most salenced people out there," said Michael Wynholds, senior engineer at Sparks.com, a San Franciscobased online reseller of greeting cards. Via Collab Net, the company got several proposals within weeks for building a

new Web-server testing tool The work was handled by an open-source programming group at one-third of the price it would have cost to hire a

which has been using the tool for a few weeks and is happy with it, sees the project as a test run and is considering using the same process for "serious business applications." A few larger enterprises have dabbled in open source.

Notable among them is San Jose-based Cisco Systems Inc., where chief print architect Damian Ivereigh created a piece of software that manages all print jobs for Cisco's worldwide operations. It was built out of pieces of open-source software such as Samba and Apache and is now available to everyone as Cisco Enterprise Printing System. A few companies are using it and have contributed minor fixes to the

code, said Ivereigh. Some analysts are skeptical about this model. "I don't think it's going to be a big trend," said consulting firm, said Wyn- David Folger, an analyst at

Meta Group Inc. in Pleasanton, Calif. CIOs won't trust opensource developers to respect deadlines and deliver quality code, he said. As for hand the resulting applications back to open source, "I think people will want to keep their intellectual property rights for the bulk

of their applications," he said. But Tracy Corbo, an analyst at Framingham, Mass-based Hurwitz Group Inc., said going the open-source route may make sense "when you need the work done but it's not the core of a business-critical system ... and you're resource-

"It really is a function of how core [the project] is to our core business." said O'Krongly, who acknowledged that he would be very besit to give away something that could give his company a competitive advantage

"This [model] will have to prove itself," said Corbo, Companies like Collab Net must be able to guarantee that opensource projects get delivered on time and meet specifications. "If they cannot do that. they won't succeed." Corbo

[Hiring open-source developers] really is a function of

how core the project is to our

core business. ANTHONY O'KROHELY VICE PRESIDENT OF IT.



### Some Firms on Slow Track To Initial Public Offerings

Dot-coms forcing firms into action

SY LEE COPELAND Imagine a technology firm with a stable product, cus-tomers and profits that chooses not to go public. It happens. Take data warehouse vendor SAS Institute Inc., for example. Raising cash was never an issue for the Cary, N.C.-based company, which has hundreds of millions in cush reserves. \*One main reason companies go public is they need the money," said SAS co-founder

and CEO James Goodnight. "And we just plain don't need the mon But after years of reticence. SAS plans to place 15% of the company's stock in an initial public offering (IPO) within 12 to 18 months, Goodnight said. The IPO is aimed, in part, at

beloing SAS retain and reward employees and at making recruiting new talent easier, said Goodnight, who holds a majority stake in the firm along with co-founder John Sall. Although Goodnight boasts

that the company's employee turnover rate is a mere 5%, he acknowledges that his firm gets "cherry-picked by the dotcoms" that offer stock options to new recruits.

\$1B

**\$30M** 

SAS is the world's largest privately held software company, with annual revenue of more than \$1 billion and 23 consecutive years of doubledigit revenue growth on an annual basis. The company's revenue even 17% from 1998 to

1999, Goodnight said. Analyst Mike Schiff at Current Analysis Inc. in Sterling. Vs., said companies such as SAS face the problem of losing employees from communies

they have acquired. "You need equity for acquisitions," he said. "SAS is not hurting for dollars, but if you're soing to keep the stoff from a company that you acquired, you have to give them

options to stay. "Going public also puts you in the spotlight," he added. "It's

Many companies, however, would rather avoid the spotlight of trading on the stock market. Founded in 1992, Info-Image Inc. in Phoenix, with estimated revenue of \$30 million. delayed going public for years. After long success as a service provider, though, the company now feels that it has a strong

position in the portal market and wants to capitalize on it, so it will announce this week that it plans to pursue an IPO.
Infolmage CEO Randy Eckel
said he delayed going public to
focus on developing a corpo-

rate Web portal software pro uct, Freedom, instead of putting undue focus on meeting earnings expectations.
"I'm one of those people that thinks a company should go public only when it's ready," said Eckel. "I was nervous about being a public company in an early-adopter market. As

a company, you need to be nimble, and that's harder as a Even as a private firm, however, Infolmage began offering options to employees in 1996. It has also increased its develcoment staff from 12 to 70 in

the post 24 months The pegative side of enine public, said Schiff, is managing

quarterly expectations.

"Meeting expectations can
be a headache," he said. "The last thing you want is an irace stockholder with 100 shares bothering you about executive

### Can IT Managers Be Heroes?

It isn't easy...



providers. But searching for, evaluating and communicating with these companies can be difficult, even frustrating. That's where we can help.

Created by industry pros, ITradar is a neutral Internet marketplace. It gives you easy access to a variety of local, regional and global firms that provide IT services.

Use ITradar to quickly identify, evaluate and select a firm with the track record, capabilities and resources to get the job done right.

ITradar is also a great way to communicate project and staffing needs with your current providers. Our process is efficient. protects your privacy, and fits around your hectic schedule.

When you do, you'll receive a \$15 gift certificate redeemable at Amazon.com.

Be a hero. Use your secret weapon.

www.ITradar.com/CWorld

### Few Takers for Benchmarks From Supply Chain Council

Guidelines are being used only by a select few major companies

THE JURY IS still out on whether the

benchmarking and modeling guidelines developed by the Supply Chain Council will gain widespread acceptance. The guidelines, created in 1996 and applated this winter. are being used by major companies such as General Motors Corp., BP Amoco PLC, Dow Corning Corp. and Daimler-Chrysler AG's auto-parts division. But they seem to be in the minority, said council offi-

ence in Rosemont. Ill., earlier The numb er of com that have fully implemented the guidelines and have had positive business results remains relatively small, they said. Things are "still in the embryonic stage in that sense, said Bill Hakanson, executive director of the Pittsburgh-

cials during the group's confer-

based council "A lot of come studying [the guidelines] and will decide later whether they want to implement them," he added. These are massive ies that are looking at this, and massive companies don't make decisions very

#### certain Number of Users

The council has more than 650 corporate members, and 150 companies have sent employees to workshops on bow to implement the supply-chain guidelines. But Hakanson said it's difficult to quantify how many of those companies are

actually using them.

The guidelines, which are known as the Supply Chain Operations Reference (SCOR) model, provide a set of benchmarks and business-process descriptions that firms can use to evaluate their supply-chain rations and then model new ways of doing business.

The guidelines are technol-

ogy-neutral, but most of the users who spoke at the conference about their experiences with SCOR said they're making bie investments in new backoffice applications and supplychain planning software as

part of their projects. Timothy Troup, a supplychain specialist at Dow Corning in Midland, Mich., said the benchmarks that are built into the SCOR midelines beloed him show his company's executives a tangible picture of supply-chain shortcomings in areas such as delivering prod-

neers, and we like numbers. Troup said "When you can put those numbers up and show lbusiness managers) that we're down here [on a chart] and the industry average is up there. they can relate to that pretty quickly."

#### In the Right Direction

At London-based BP Amoco's petrochemical division. the SCOR guidelines helped "point us in the direction we should be going in order to improve supply-chain performance said Ken Fyans who led a supply-chain assessment team at the unit and is now managing an installation of SAP AG's enterprise resource planning software.

some weaknesses, said Evans. For example, he said, a collection of suggested business processes appears to have been written mainly by vendors. There's a lot more depth that could be put into Ithat section!" Evans said. Many of the conference at-

tendees were just trying to comprehend the SCOR guidelines. "I'm trying to understand what [SCOR is] all about," said Robert Miller, logistics information systems manager at Growmark Inc., an agricultural cooperative in Bloomington. III. \*Hopefully, it can help us determine where we come up sbort and show wel could improve things. But first, we have to learn how to use it."

#### **How SCOR** Was Defined

oly Chain Council in Ti

### Handhelds Can Help Catch Medical Errors

Early hospital trials show promise

ucts to customers on time.

BY MATT HAMPLER Pharmacists and others push ing to reduce the number of

medical errors are putting more drive into the sometimes moribund trend in the medical industry toward handheld based systems to link information on drugs, patients and

At least 44,000 Americans die each year as a result of medical errors, making such errors the eighth leading cause of death, according to estimates in a report issued last year by The Institute of Medicine in Washington, a federally funded division of the Nation al Academy of Sciences. The total cost of injuries related to

medical errors is more than \$17 billion a year, the institute said \*Error reduction is a top mission at this hospital and the prime reason we instituted our handheld projects - not that we had high errors in the first place," said Michael Mutter, pharmacy manager at The Valley Hospital in Ridge-

wood, N.J., a 412-bed facility. The hospital is concerned about keeping costs low with any information system, but what drove the hospital's push to implement handhelds was the need to cut down on errors.

### Mutter said.

Valley Hospital has begun a beta test of a medicationdelivery system that involves SPT 1700 hands

helds from Symbol Technologies Inc. in Ridgefield, N.J. The handhelds are equipped with barcode scanners. In another project, Valley Hospital in the past year has used handhelds to

guide technicians

through record checks when blood sa taken [Technology, April 17]. Becton, Dickinson and Co. in Franklin Lakes, N.J., is providing the software and systems support for the projects. Valley anticipates spending more recoup that investment within about two years through ad-

helds out costs, errors ical Practices in Huntinston than \$200,000 and expects to

eliminating the need to enter data from paper forms or redo a blood test done on the wrong patient, which could lead to expensive additional days of care, Mutter said. In the thousands of blood samples taken each month, four to six were typically taken from the wrong patient or involved a mislabeled sample. Using the Becton Dickinson system, those

errors have been eliminated, Mutter "Handheld verification systems

promise lots of improvements, but alone won't prevent errors," said Mike Cohen, president of the Institute for Safe Med-

Valley, Pa. It will "take time to get these systems implemented and productive." Cohen and other analys said the information technology infrastructure at most hospitals has been deficient in preventing errors, especially drug

ican Medical Res (AMR) in Aurora, Colo., this month is implementing a handheld system for 250 paramedics. Using a Palm Inc. handhold to quickly collect patient data on preset forms may reduce errors caused by illegible writing on paper forms, said Lon Adams, an AMR paramedic in San Mateo County, Calif.

Another advantage of the handhelds is that the information will flow into a database to help doctors and paramedics determine which emergency treatments are truly beneficial. "We're finding that many of the treatments we thought were of benefit were not and in some cases actually harmed patients or complicated their in-hospi

tal treatment." Adams said. AMR is spending \$75,000 on the handheld system, part of a \$500,000 project to Web-enable the San Mateo County ambulance service, which serves 17 towns, said Eric Gee, manager of AMR's handheld project The American National Red

Cross in Washington is building a handheld system that blood donors will use to register and answer a 40-ques survey. The goal is to reduce errors and get risk-factor data into screening systems faster. said Red Cross process engineer Christopher Patton.

### WORKSTYLES

### IT Dads Push for Paternity Leave

Paterrety expert James Levine has been getting a lot of calls

It seems corporate leaders have been paying close attonivan to the media frenzy over whether British Prime Minister Tony Blar should take paterney leave after the birth of his child. And many are turning to Levine director of the Fatherhood Proect at the Families and Work Institute in New York, for advice

about their own time-off policies Think the Tony Star thing has promoted a lot of attention," says Levine, co-author of Working Fathers icing Work and

But paid paternity leaves, while more mon now than a decade ann are still relatively rare.

High tech comnies, though, are buckens the bend. Along with competene salaries and stock cohors. many IT businesses are offering paid paternity leave.

The war for talent is so extrame," he says. The cush seems to be comng from young professionals many without children - who work for internet start-ups, says human resources specialist

Anne M. Pauker, president of Pauler Consulting Group in Princeton Junction, N.J. Although IT professionals are working long hours now, they hope to map the benefits by the

tone they have children It's a stage of life issue. said Peuter, "Marry went to know it will be available when free hour late

Before passage of the Family ch requires companies to

and Medical Leave Act of 1993. offer up to 12 weeks of unpaid we for new fathers, only progressive businesses offered vity leave, says Pauleer nce then, more companies led policies for fathers, but only a tiny fraction of work

ing men actually take adventage of the benefits. "There are still far fewer dads that take leave then morns.

says Pauker, "I mean far, far Very often, men are very self-conscious for taking these

leaves," she explains, "I don't think it's in their imagination. Jeffrey Honning, MS man ager at internet survey software provider Perseus Development

Corp. in Braintree, Mass., was working on a major project when his son, Nicholes, was born four years ago He couldn't take are time off, he said. "much my wife's

chaorin' But last Christ mas. Henning was able to take two leave after the bette of his child, Cattin

At Ventura, Calif. based outdoor ciothing company Patagonia

Inc., paternity leave has been a given since 1965. All employees men or women - with two years' tenure have up to a year to take an moht-warek good child-care leave, said Anita Garaway Furtaw, director of family services at Palagonia Latus Development Corp. Merril Lynch & Co and Microsoft Corp. also have good pater

nity inme policies, said I evine. The costs of paternity leave

can often pay off in the long rum, sava Pauker. "I think most managers would of eldelaws elacora sail videdo them 24 hours a day, seven days a week," she says.

But family leave can help people feel productive and atted to their work. Parker says she thinks [] rise will continue office ing paternity leave, even if the

job market sours and they aren't eting for workers. "Once you give, can you take ny?" she asked. "You can by. But your truly good people are

- Melose Solomon

IIM CHAMPY

### Re-engineering redux

APITAL MARKETS have spoken. The promise of profits in business-to-consumer e-commerce is hollow - at least for now. Money to build the Amazon.coms of the future will be harder to come by. Peapod, the nation's first online grocery-shopping service, needed a cash

infusioo from a supermarket chain. The market caps of most consumer e-commerce companies have dropped dramatically.

The problem was quite predictable. The Internet is the great commoditizer. Prices went down as e-commerce companies tried to buy consumer loyalty. But, as the old joke goes, if you're losing money on every transaction, you can't make it up on volume.

What e-commerce companies have missed is that you can only buy customer loyalty by dramatically improving your value proposition beyond price.

When Michael Hammer and I introduced the idea of re-engineering in 1992, we were principally focused on dramatically improving internal processes, like new product development, order fulfillment and service. For e-commerce to work, companies must look out-

side themselves and understand their customers' processes, like purchasing, bill payment and man ufacturing, and offer ways to improve them in combination with their own. Why didn't "e-tailers" look at consumer processes and try to integrate them with their own? Real re-engineering is hard to do, and many New Economy venturers lived with the hope and

promise that just having a slick Web site would do. Now the question is whether

business-to-business e-commerce will be any more successful. Canital markets have shifted their interests to business markets, but somewhat nervously. Investors should be concerned because so called business-to-business digital marketplaces will succeed only if they offer re-engineered processes to sellers and buyers. Otherwise,

these marketplaces will just drive down sellers' prices and offer no other value But that need not be the case. A General Mo-

tors executive recently told me that the digital marketplace the company is building to acquire automotive components is expected to improve many of GM's processes. GM estimates that production and inventory costs could both drop by as much as 15%, and the cost of a vehicle could be reduced by as much as 14%. Transac-

tion costs on the \$87 billion GM spends annually on purchasing components could also drop as much as 20%

So how should companies that want to launch or join digital marketplaces think? Here's some advice for making the next round of re-engineering work better than the last one

Start thinking about standardizing processes in your industry - especially those that touch the customer. Processes like bill payment and presentment are good examples. Both sellers' and buvers' costs could be dramatically reduced if these processes were simplified and standardized. Business-to-business digital marketplaces finally provide this opportunity.

■ Be prepared to operate with more standard ized processes that may be offered by a third party. For example, there's a company operating

today - eCredit.com Inc. - that will instantaneously evaluate and rate custumer credit risks. Standardized processes done in-house will increasingly be outsourced to third parties. The Internet is the great enabler here.

Consider offering your customers computing services through your digital marketplace. Small to medium-size companies that may buy your products don't manage computing well. Most would be very receptive to what I have described

as a version of "ERP lite." Don't create a digital marketplace alone. No matter how big your company may be, you won't have all the products and services customers need. You can improve your customers' efficiency by giving them the place to shop. Offering variety is one of the great value propositions. That means that you and other sellers in your market-

place will have to align your processes to make it easy for your customers to shop. It all adds up to one argument that I've been waiting 10 years to make: The New Economy woo't work without re-engineering.

Champy is chairman of consulting at Pernt Systems Corp. in Cambridge, Mass. He can be reached at JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.







Handhelds are everywhere, but they carry a lot of sensitive data and are easy to lose. So how do you keep these devices and their data from getting into the wrong hands? IT managers offer advice, from policies to passwords. By Matt Hamblen

S AN IT MANAGER, Charles Novak never thought he'd be worrying about something called "promiscuous synchronizing." And despite warnings from some security experts, he's putting off the day he considers whether to recommend full-body searches for workers who could be hiding sensitive data on handheld computers or smart phones. But Westinghouse Savannah River Co. in Aiken, S.C., makes weaponsgrade plutonium and stores hazardous waste for the federal government, so the need to protect critical data from walking out the door is paramount, be says. Conceivably, a terrorist group could use the information to locate and steal secrets or deadly materials.

The coming flood of handheld com puters and smart phones has made Novak, a technology planner at Westinghouse, rethink his assumptions about security. In 2003, there will be I billioo smart devices connected wirelessly. and 600 million of those will be Webenabled, say analysts at Gartner Group

Inc. in Stamford, Conn. "Setting a policy for use of handheld computers is the hardest part," Novak says. "Handhelds and smart phones are different creatures from laptops and other computers."

Many Risks "It's terrifying when you think seriously about the security risks posed by handhelds," because there will be so many of them, says an information



### **GADGETS AT THE**

1995 438

999 1,066 2000 267

technology planner at a soap manu facturing and distribution company in the Midwest, who asked to remain

"Anything network-connected is a security risk, and just about any PDA [personal digital assistant], cell phone or pager is on a network sooner or later," says David Gerstenlauer, directur nf network development at Ikon Office Solutions Inc. in Norcross, Ga.

Analysts and some IT managers wo ry that a disgruntled worker or corporate spy could quickly download data to a device with memory as big as 128MB, and the act might go unnoticed partly because synchronizing between handhelds can become so commonplace that experts call it "promiscuous." Plus, some devices are so small they're easy

to hide and can even send data packets

wirelessly or via an infrared port. The greatest risk might come from losing a device. For example, an innocent user carrying important informa-tion might accidentally leave a phone nr handheid device in an airport without having set up sufficient password protection to block malicious use, ana-

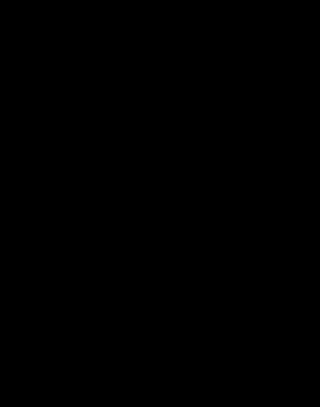
lysts say (see story above). Managers at a large pharmaceutical company nnce called Gartner analysts for advice because they wondered what to do about a salesman who had loaded on his handheld information on patients involved in an nacology study. In another case, a client lost a handheld with his online trading password easily accessible; luckily, it was returned with no unauthorized trades.

Analysts say Novak is like many FT managers who are struggling to find out all the security vulnerabilities of handhelds and then to determine

whether the risk of losing data is serious enough to warrant expensive pro-tections. The risks he's confronting are greater than those at many companies "Handheld security concerns are not on the Top 10 list of IT worries right now, but they will be next year," wher more devices will be brought to work says John Pescatore, a Gartner analy

The security problems associated with handhelds require legal, admir trative and technical precautions, ana lysts say. Simple steps matter. For ex ample, the company, not individual workers, should pay for the devices.

Continued on page 52





### GADGETS AT THE

Lost cell phones, PDAs and computers turned in at Roagan National and Dulles International airports in the

Washington area. 1995 438 1999 1.066

2000 267 (Ist quarter)

SOURCE BETTOPOLITER WASHINGTON

AS EXECUTIVES AND salespeople roam the country with PDAs, there's a damper that sensitive company data could be lost in a taxocab or

The collection at San Francisco Internetional Airport would fill a cerdiboard box, say San Francisco Police Sgt. John Francisuch, who oversees the lost-and-found there. "We

Som vapor would be a consciour box, says. Som Francisco Police Sgt. John Francisco, who oversees the lost and found there. "We get a couple of notebooks a month, eight to to cell phones a week, a couple of Paire-Plots. The says of the treentory. His advice. Use the device's password protection and III out the "owner page" so there's a chance the device can be reunted with you. Of course, most lost devices are kept by the finder and aren't turned in, Fran-

icovich notes. The listenet Lost and Found (www. lostendfound.com) run by Coperco Financia in. Lists 88 electronic devices - 2 of hhrm PDMs - currently reported lost. Meanwhile. Deniver International Alexand good good codes per week from busmost traveliers who have lost Patrics and other effectionic organize era. a lost and Hound client says.

Airport officials say the gadgets usually are left at security checipoints or on froze little shelves at public phones. One official says the best advox is simply to get to the airport early; most devices are lest when the owner which the says of the property of the Airport of the says of the Airport of the says of the array of the Airport of Airport

S

technology planner at a soap manufacturing and distribution company in the Midwest, who asked to remain

anonymous.

"Anything network-connected is a security risk, and just about any PDA [personal digital assistant], cell phone or pager is on a network sooner or later," says David Gerstenlauer, director of network development at Ikon Office Solutions Inc. in Norerous, Ga.

Analysis and some IT managers worry that a disgramified worker or corponate spy could quickly download data to a device with memory as big as 128MB, and the act might go unsoited partly because synchronizing between handholds can become so commonplace that experts call it "promisciouss." Plus, some devices are so small they're easy to hide and can even send data packets wirelessly or via an infrared port. The greatest risk might come from losing a device. For example, an innocent user carrying important informa-

cent user carrying important information might accidentally leave a phone or handheld device in an airport without having set up sufficient password protection to block malicious use, analysts say (see story above).

Managers at a large pharmaceutical company once called Gartner analysts for advice because they wondered what to do about a salesman who had loaded on his handhed information on patients involved in an oncology study, in another case, a client lost a handheld with his online trading password easily accessible; luckly, it was returned with no unauthorized trades.

Analysts say Novak is like many IT managers who are struggling to find out all the security vulnerabilities of handhelds and then to determine whether the risk of losing data is serious enough to warrant expensive protections. The risks he's confronting are greater than howe at many companies. "Handheld security concerns are not on the Top 10 list of IT worries right

now, but they will be next year," when more devices will be brought to work, says John Precatore, a Gartner analyst. The security problems associated with handhelds require legal, adminitrative and technical precautions, analysts say, Simple saeps matter. For example, the company, not individual workers, should pay for the devices.

Continued on page 52



109. Visualizar and Milloren, are regalated trademarks and Wellshore, the extensional logar and Software is the total of a doubless, are intermedia of intermediated Business Machines Corporation in the United States and/or other courses, and all allow business are intermediated intermediated trademarks or provide ments of charts. C 2020 ISS Cop. All rights reserved.

Software 10 to soul or e-business. Industrial-strength software building blocks from IBM can help you transform any technology base into a platform for continuous change. Whether you're a dot-com growing from zero to megasite size or an enterprise morphing at Internet speed, IBM can help you develop in any direction. Upward to millions of customers. Outward across a world of suppliers. Or onward to whatever tomorrow's new Mission turns out to be.

life of your site. From startup in as fast as 60 days radically simplify the business of creating managing. to the customer relationship and order management debugging and deploying multiplatform Web tools that help 40 of the top 100 Internet retailers build traffic, loyalty and revenue.

WebSphere Application Server integrates MQSeries' Integration software is today's most edge in a world where Fast eats Big.

WebSphere Commerce Selte is designed for the VisualAge for Java\* and WebSphere studio tools applications based on open standards like XML

and Enterprise Java Beans.

development and runtime environments, helping flexible way to unite an ever-changing world of you build and roll out powerful new Web-based business allies into a single enterprise. It eliminates applications in weeks, not months - a decisive technology barriers among disparate applications on over 35 platforms.

See how you can build ac e-business in 60 days. Visit www.ibm.com/software/soul/build for a step-by-step e-commerce Roadmap and business integration infoPack. Plus business case histories and free trial code

### Walking Disasters

Continued from page 49
Moreover, the employer should install common synchronization software on a server and set higher standards for use of passwords and for encryption when the devices are used on a wireless or utiler type of network.

Westinghouse has Bood employees. Some of its labs have outright bans on using handholds, but others don't. So Novak is helping set policies that apply to labs that allow handholds. "People bring them in all the time, but we are trying to contain them," he saws.

trying to contain them." he says. Westinghouse is developing a usage agreement for handhelds. Similar to the such that covers the use of lapsops, the agreement would besically require a health of the says of th

vice so be can return it to a user.

Another problem Novak has found is
that is's hard to identify some handhelds. Novak bought a dozen of Handpering line's new Visor handbelds but
sound they have no ROM identification
number, which means there would be
no way for a security guard to check
whether a worker was walking out
with the same device be had when he
entered the building.

Novak's problems could be solved fairly simply if the company could require that company data be kept only on machines that the company purchased, analysts say. Yet, so fin less than 3% of the more than 3 million handhelds deployed in the U.S. and used by employees are purchased by companies, estimates Garroer analyst

Kers Dulancy.

Experts say companies can begin as Experts say companies can begin at content the cost of supporting hand-holds—and also security risks—by prechasing the devices and aurrowing experts of the cost of the cost

"We have standardized on the cell phones people can use, but not the pagers or PDAs, and we have to come up with some policies for PDA usage and synchronization," says Ikon's Ger-

#### Secure Transactions

Some companies that have raced to enter the consumer market for selling products and services via handhelds and the Web say security must be then top concern, or customers will star

"We won't launch any application if it's not secure," says Joseph Ferra, a senior vice president at Edelliy Investments in Boston, which launched InstantBroker in 1998 to bring stock trades to contomers via papers and wireless handhelds.

reades to contourier via popers and wireless hundhelds. Eddelty is working on digital certificate security to allow online wireless check-writing. The company has set a

care security to anow online wireless check writing. The company has set a E8-bit encryption standard for all transactions.

Garner analysts any some early exgeneractions with wireless transactions. The previous side wireless transactions which is been. Pescators says he and another Gartner analyst, flob Figan, ordered a book from Annaon com Inc. Via a Sprint PNS Group wireless phone. Ext. December and moised that the phone allowed a user to insert a previously registered Annaon user name and pseasond, but didn't hide the provinced with Nx is would be done on a Pick.

"That violates Security 101," says Poscatore I Technology, April 31. Sprint PCS officiols say the company decided it must keep the password vivible as it's typed on a small. 10-button phone keypad, 'That practice will compleme keypad. That practice will com-

ible as it's typed on a small 10-button phone keypad. That practice will continue as a "technology trade-off," says Billy Stephens, director of product management and development for

#### TIPS FOR Handheld Security

SECURITY ANALYSTS and IT managers advise you to do the following to keep information on your handhelds from getting

into the wrong hands:

1. Have your company purchase handhelds and smart phones to make it clear who owns the critical data on them.

2. Set up synchronization software on a samer common to all handhelds to ease

administration and to assist in monetoring who is downloading what data.

3. Develop policies that explicitly state who owns the data, what data can be downloaded to a handheld and what dat must be surrendered if questions arise.

4. Decroibe password protections and preserve programs and data to seen

 Describe persword protections and privacy concerns and risks to users.
 Resewords need to be changed eften and ensigned by an administrate outers and rank observe personner.

- Matt Hambleo



wireless data services at Sprint PCS. He urges phone users to keep their online phone e-commerce transactions as hidden from view as possible.

hidden from view as possible.

Also, the December transaction allowed Amazon to automatically bill a
Pescatore purchase to one of his old
credit cards without his authorization
Amazon, com says this wouldn't have

Amazon.com says this wouldn't have been passible unless Pescatore had turned on the authorization via his PC. And the transaction resulted in the Amazon password being cached on the phone's memory, something that Sprint officials say could be changed.

portion contentions of country of the contention architect at Prudential Property and Casualty Instrumence Co. in Holmade, NJ, says agents are already using heavy-duty Lutynes and cellular phones in the field to respond to emergencies and have been trained to understand the security and privacy needs of customer data.

More handhold computers are expected, says Raon. "We would not want agents downloading sensitive data about a customer's polds from a corporate server to a handheld that some server of the server of the server between the server of the server of the thing the server of the server of the Chery Chase. Well, says companies setting up mobile workforces and consumer applications with handhelds aren't being careful enough, "vendoor and carriers need to be more worked

ried about privacy," he says, "If they

be surprised."

don't get on the ball, they are going to

Analysis aren't as worried about data being sniffed or stolen from wireless transmissions in a company's wide-area network as they are about constantly connected devices such as PCs attached to a LAN. Wireless sniffing is not a Top ID worry, 'says Peter Tippett, vice chairman of ICSA.com in Reston, Va. a security consulting firm. Egan says the threat of eavesdropping is greater over wireless LANs 45

Anything network-connected is a security risk, and just about any PDA, cell phone or pager is on a network sooner or later.

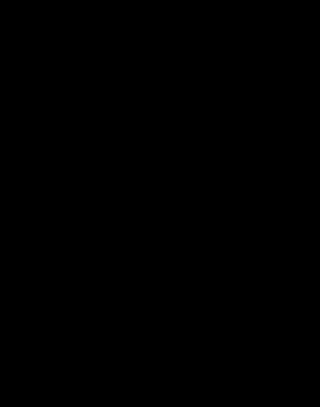
than WANs, where a lineker could find a wireless LAN router and try to hack into it from near a company's headquarters. But vendors are developing ways to protect wireless LAN routers from hacking.

rrom nactang.

Tippett says he believes a very
cheap way to reduce security risks
with handhelds is to require that passwords be six to eight characters long,
using upper- and lowercase letters and
punctuation marks. The passwords
should also be assigned by a manager
and changed monthly he says
and changed monthly.

The information security headaches from hundheld devices may turn our to be even greater than the headaches caused by laptop PCs, because handhelds are smaller and thus easier to lose or steel.

Everything that was a laptop security issue will be a serious issue for PDAs; says Robert P. Campbell, a security expert and managing direct of Peak Consulting in Woodbridge, Va. "This is going to be a very serious problem, especially because senior excurives will be using them for sensitive corporate information."



### **Walking** Disasters

Continued from page 49 Moreover, the employer should install

common synchronization software on a server and set higher standards for use of passwords and for encryption when the devices are used on a wireless or other type of network.

Westinghouse has 15,000 employees. Some of its labs have outright bans on using handhelds, but others don't So. Novak is helping set policies that apply to labs that allow handhelds. "People bring them in all the time, but we are trying to contain them," he says.

Westinghouse is developing a usag ment for handhelds. Similar to the one that covers the use of laptops, the agreement would basically require a worker to surrender the data on a handheld, even if the device is his personal property. The company's laptop policy states that a security officer suspecting a breach might return the laptop min a hard drive. But Novak says he has yet to find a way to scour clean the read only memory (ROM) in a handheld device so be can return it to a user

Another problem Novak has found is that it's hard to identify some handhelds. Novak bought a dozen of Hand-spring Inc.'s new Visor handhelds but found they have no ROM identification. er, which means there would be no way for a security guard to check whether a worker was walking out with the same device he had when he

entered the building. Novak's problems could be solved fairly simply if the company could require that company data he kept only on machines that the company pur chased, analysts say. Yet, so far, less than 3% of the more than 3 million selds deployed in the U.S. and used by employees are purchased by es, estimates Gartner analyst

Ken Dulaney Experts say companies can begin to ontrol the cost of supporting handhelds - and also security risks - by purchasing the devices and narrowing the choices from dozens of products to several. Next, corporations need to push their users to use the approved synchronization software that IT puts on a corporate server instead of the software that comes with each machine. That way, an IT shon can find synchronization software that works with several operating systems, and IT managers can monitor who is downloading corporate data.

"We have standardized on the cell phones people can use, but not the pagers or PDAs, and we have to come up with some policies for PDA usage and synchronization," says Ikon's Gerstenlauer

#### Secure Transactions

Some companies that have raced to enter the consumer market for selling products and services via handhelds and the Web say security must be their ton concern of customers will stay

"We won't launch any application if it's not secure," says Joseph Ferra, a senior vice president at Fidelity Iovestments in Boston, which launched In-

stantBroker in 1998 to brine stock trades to customers via pagers and wireless handhelds Fidelity is working on digital certifi-

cate security to allow online wireless cbeck-writing. The company has set a 128-blt encryption standard for all

Gartner analysts say some early exnetlences with wireless transactions weren't as secure as they should have been. Pescatore says he and another Gartner analyst, Bob Egan, ordered a book from Amazon.com Inc. via a Sprint PCS Group wireless phone last December and noticed that the phone allowed a user to insert a previously registered Amazon user name and password, but didn't hide the password with X's, as would be done on a PC. "That violates Security 101," says

Pescatore [Technology, April 3]. Sprint PCS officials say the company decided it must keep the password visible as it's typed on a small. 10-button phone keypad. That practice will continue as a "technology trade-off," says Billy Stephens, director of product anagement and develops



wireless data services at Sprint PCS. He urges phone users to keep their online phone e-commerce transactions as hidden from view as possible.

Also, the December transaction allowed Amazon to automatically hill a Pescatore purchase to one of his old credit cards without his authorization Amazon.com says this wouldn't have been possible unless Pescatore had

turned on the authorization via his PC. And the transaction resulted in the Amazon password being cached on the phone's memory, something that Sprint officials say could be changed.

Joseph Baron, com chitect at Prodential Property and Casualty Insurance Co. in Holmdel, N.L. says agents are already using beavyduty laptops and cellular phones in the field to respond to emergencies and have been trained to understand the security and privacy needs of cus-

tomer data More handheld computers are ex-pected, says Baron, "We would not want agents downloading sensitive data about a customer's policy from a corporate server to a handheld that

some third party could see," he says. But Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., says companies setting up mobile workforces and con sumer applications with handhelds aren't being careful enough. "Vendors and carriers need to be more worried about security and a lot, lot more wor ried about privacy," he says, "If they don't get on the ball, they are going to he surprised."

Analysts aren't as worried about data being sniffed or stolen from wire less transmissions in a company's wide-area network as they are about constantly connected devices such as PCs attached to a LAN. "Wireless sniffing is not a Top 10 worry," says Peter Tippett, vice chairman of ICSA.com in Reston, Va., a security consulting firm. Egan says the threat of eavesdropping is greater over wireless LANs

Anything net-

work-connected is a security risk, and just about any PDA, cell phone or pager is on

a network sooner or later. DAVID BERSTENLAUER, DIRECTOR OF METWORK DEVELOPMENT, INCH

than WANs, where a backer could find a wireless LAN router and try to back into it from near a company's headquarters. But vendors are developing ways to protect wireless LAN mosters

from backing Tippett says he helieves a very cheap way to reduce security risks with handhelds is to require that passwords he six to eight characters long. using upper- and lowercase letters and punctuation marks. The passwords should also be assigned by a manager and changed monthly, he says. The information security headaches

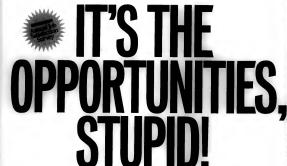
from handheld devices may turn out to he even greater than the beadaches caused by lanton PCs, because handhelds are smaller and thus easier to lose or steal. "Everything that was a laptop securi

ty issue will be a serious issue for PDAs," says Robert P. Campbell, a security expert and managing direct of Peak Consulting in Woodbridge, Va. "This is going to be a very serious problem, especially because senior executives will be using them for sensi tive corporate information."



### Every day, became on is making life better and carrier skills obsolete.

With iterally huindreds of thousands of-courses in weighting from IT certification and destaba applications to counting and finance. Trainsplied is the largest and smarter raining manteleptics. Search, evaluate, and buy classroom and minimic contains. Coli, widous, books, and audiologoes from over 1200 leading providers. So whether you need principle your lean, or yourself. Trainsipplied holgs you stay shade.



A IT NOW IT ITHER going forward or backward. Information to backward there's no in-between Information technology foils who are moving forward—learning new skills, taking on stretch assignments and building their careers—are satisfied in their jobs. Those who are unable to get the training they want or able to get the training they want or able to get the training they want or learning the satisfied in their jobs. Those who are unable to get the training they want or any other training they want or any ot

working to their full potential.

That's the main message of this year's
Annual job Satisfaction Survey, and it
comes with a troubling code: More than
half of the 575 responsients said their
overall job satisfaction has decreased
over the past year. So it seems that man-

agement into getting the message.

A provision analysis and an outconcering comparison and the second control of the first and in a supcorporate that affect is such in a supcorporate that affect is such as a former. It's a big needle concer as a former. It's a big needle concern as a former. It's a big needle concern that are a first and the comparison of the compar

Think IT pros are greedy? Perhaps a bit. But the real key to keeping them from leaving doesn't involve money. By Kathleen Melymuka

A customer support manager at a new-media company says she's over-looked and underappreciated. "Once you're with a company for a while, you tend to get pigeonholed in your current responsibilities, and they forget that you may have other talens or abilities," she says. "That's where I am

ities," she says. "That's where I am now. I feel underutilized." These folks aren't alone. More than two-thirds of the IT workers surveyed

said they aren't working to their full potential, and more than a quarter expect to leave their jobs within the next year. But here's how it feels on the filp side: Howard Clodifelter, a senior applications analyst at Denver-based software firm J. D. Edwards & Co., says his

company gives him both ample training and the opportunity to use that training on new projects. "I have all the things I need to do a good job, and that feels

good," he says.

Technical people aren't afraid to
work hard — very hard — if the project is stimulating and the technology

is challenging.

The technology leader on a high speed, high-pressure e-commerce.

speed, high-pressure e-commerce project at a manufacturing company says the opportunity to work with cutting-edge technology in a project that's making an important contribution to the business more than compensates for the pressures of tight deadlines and killer hours. "Even though it's more hectic than what they're used to, everybody I've met over here is so thrilled to be here, they wouldn't go anywhere else," he

they wouldn't go anywhere else, ne explains.

It doesn't always take bleeding-edge technology to keep people happy. A clear sense of career progression may do the trick. For example, a program

clear sense of career progression may do the trick. For example, a program manager at a government contractor was getting near the end of her rope when a new opportunity turned her

"I've been promoted into a new position, and I have more responsibility and feel more challenged," she reports. "I like what I'm doing, and I'm not bored or feeling underutilized."

or feeling underutilized."

These are people who feel they're working to their full potential, but unfortunately, only one in four of our survey respondents said they feel that way.

#### A Happy Band

Despite frequent dissatisfaction with individual situations, the survey group is overwhelmingly happy with the field and the people with whom they share it. Nearly nine out of 10 said they're satisfied with technology as a field of work.

More than two-thirds are happy with their relationships with both clients **BUSINESS**SPECIAL REPORT

and peers at work, and many said their colleagues are a main source of satisfaction on the job

"The people are my favorite part," says a systems manager at a large in-surance company. "There's a lot of teamwork, a lot of brainstorming, a

lot of support."

The ability of IT team members to work well together clearly affects both retention and productivity. For example, the director of network services at a state government agency says his supervisor has invested heavily in team building. The result has been not only a top-performing team, but one that values each member and perseveres

despite below-par salaries. We get a lot of recognition for the work we do," be says. "Everyone's treated with respect, and everyone's ideas are wanted. None of us is here

for the salary. We're here for the satis faction of knowing we do a good job." Managers fared worse than co-workers in employees' eyes. Approximately half of the respondents are satisfied with their managers, while approximately one-third said their bosses need

Erika Muller, a network engineer at LAN Associates in Babylon, N.Y., has experienced both good and bad simutions. She recently left a company where she says she felt manage ment left her "floating in the etber" all the time.

improvement

"I was floundering around, and when I asked for guidance, I never got any," she says.

At her current workplace, she explains, "we have real management instead of people who say they're managers but don't manage anything. Maners here stay in touch. They expect accountability\*

For example, she says, "my manage will ask what I did at the client site, how it went [and] whether I need any other tools or help. Basically, there is somebody here who cares."

#### The Business Connection

Clearly, IT people care about the business and identify strongly with business issues. Approximately two-thirds said they understand the business mission and the issues in their industry. While it's important to them to be involved in the business, they are about evenly divided between those who perceive that they can influence pany's success on a day-to-day basis and those who feel they can't.

A systems analyst at a manufactur ing company says he's very pleased with his current assignment, which volves rotating through various bus iness units. "I get to see different facets of the company, not just from a sys-tems perspective but from a process perspective," he says.

On the other hand, employees who don't feel that they have a strong connection with the business are less satisfied.

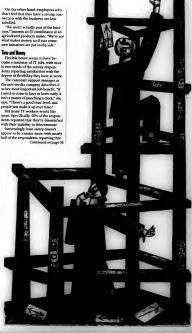
"We aren't actually part of the business," laments an IT coordinator at an agricultural products maker. "We're not what makes money, so if cuts come

#### Time and Money

come a mainstay of IT jobs, with nearly two-thirds of the survey respondents reporting satisfaction with the degree of flexibility they have at work.

The customer support manager at the new-media company describes it as her most important job benefit. "It I need to come in later or leave early, it isn't a matter of punching a clock," she says. "There's a good trust level, and

But many IT workers would like more. Specifically, 40% of the respon dents reported that they're dissatisfied with their inability to telecommute



15% 27% 17% 15% 394 394 2796 2046 2096

> 19% 53% 7% 7% 20% 20% 40% 8% 27% 7%

5% 25% 25%

### **BUSINESS**SPECIAL REPORT



oney and performance that clearly need attention. Slightly more than half of the respondents reported dissatisfaction with the amount and frequency of bonuses, as well as the relationship of pay to performance. "I'm pleased with my pay," the cus-

tomer support manager says, adding that she's actually thinking about negoriating to trade an upcoming raise for more time off to spend with her family. But she has some problems with

the way money gets distributed at her workplace. "I think others here with less experience are making more, so I'm somewhat dissatisfied about that." she says.

unting Stress

Given the level of dissatisfaction with various issues, it isn't surprising that stress is pervasive in the IT workplace. Three out of four respondents reported that their jobs are stressful or very stressful, and more than half said their stress levels are going up.

On-the-job stress seems to relate at least as much to people's sense of hitting career walls as it does to the infamous IT workload, however, While approximately 20% cited workload as the chief factor contributing to stress, about 30% cited lack of career development

or inability to use current technology. The IT coordinator says he's stressed by his company's failure to use newer technology. "We sit back and wait for everybody else to try it first," he says.

"It's frustrating." He says he'd be more likely to change jobs for better technical and career opportunities than for more money, and that puts him in the main stream of respondents. Though salary was the standard answer respondents gave for leaving their last jobs, nearly three times as many complained about

either lack of training, advancement or challenges. The message from this year's job satisfaction survey couldn't be clearer: Help them grow or watch them go.

and where on making granger.					
	1996 Grade	1007 Grado	1998 Grade	1999 Grade	2000 Grade
Salary	C	B-	C-	B-	C+
Opportunities for advancement	D-	D	D	D	D
Use of new technology	C+	В	В	В	В
Challenging assignments	В	D+	В	B+	В
Career goals/planning	664*	MA	C	C	D+
Access to training	C	C	C	C+	D+
Managoable job stress	A-	B+	B+	B-	В
Overall job satisfaction	B- '	В	B-	В	C-

### Some Work Cultures



	-			Somewhat satisfied	32%	39%	26%	5396
	7			Nother satisfied or denoteded, or NA	14%	13%	9%	700
				Somewhat desattsfield	20%	15%	22%	796
3				Very desets/fed	12%	14%	13%	20%
	-			. Opportunities for interesting projects				
			-	Very satisfied	20%	17%	22%	20%
	-		_	Somewhat satisfied	32%	30%	3295	40%
Oper	Versiter	Coonstant	Conversation	Nether satisfied or dissutisfied, or NA	1796	25%	9%	895
				Somewhat deceated and	22%	22%	37%	27%
				Very dissuted and	99	1096	7%	796
196 3696	13%	24%	0%			~~	1-4	170
	34%	33%	53%	Ability to influence decisions affecting you				
1696	10%	169b	13%	Very satisfied	19%	14%	20%	7%
24%	29%	1990	27%	Somewhat satisfied	32%	30%	24%	4790
14%	14%	995	7%	Neither satisfied or dissatisfied, or NA	1996	20%	1996	12%
				Somewhat disselled	19%	25%	29%	27%
8%	8%	996	096	Very dissatished	15%	196	16%	7%
17%	20%	1796	096	Access to training and education				
129b	16%	209b	1796	Very satisfied	179-	17%	20%	13%
19%	26%	299	27%	Somewhat satisfied	25%	30%	33%	20%
37%	32%	396	NOSe.	Neither satisfied or dissatisfied or NA	19%	20%	996	796
				Somewhat departs field	19%	256	209h	27%
				Very descripted	25%	19%	19%	3796
8%	5%	9%	0%		are	19-60	1040	2349
17%	2%	20%	20%	Workload				
19%	24%	20%	20%	Very satisfied	8%	7%	19%	096
25%	28%	33%	33%	Somewhat subshed	26%	30%	365e	47%
32%	28%	19%	27%	Norther satisfied or dissatisfied, or NA	24%	29%	21%	0%
				Somewhat desetshed	25%	23%	1996	409
1896	12%	22%	33%	Very dissatisfied	17%	129h	194	1594
219h	25%	22%	7%					
19%	20%	1996	700	How has your overall satisfaction changed on		m'		
24%	77%	20%	4296	Stated the same	25%	19%	39%	67%
19%	27°90	1996	1396		29%	24%	9%	20%
19-10		NF-90	1076	Decremed	54%	589br	53%	13%

Opportunity for advancement Vary satisfied

Somewhat satisfied Neither satisfied or desarteded, or Ni mewhat departs and

### Grumpier Old Men (and Women)



Little Difference

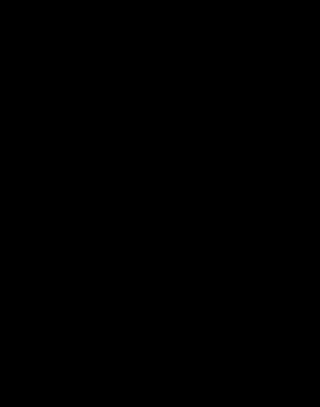
	Men	Wester	п
Satisfaction with salary			١
Very satisfied	13%	10%	
Somewhat satisfied	34%	39%	
Healther or NA*	10%	13%	
Somewhat descripted	25%	25%	
Very desatished	149b	13%	
THE REPORT OF THE			

Very satisfied	8%	8%	1
Somewhat satisfied	19%	2%	1
Neither or NA	2%	20%	1
Somewhat dissolished	23%	14%	1
Very dissatisfied	38%	476	ŀ
Connection between pay	and perform	nance	1
Very satisfied	8%	6%	1.
Somewhat satisfied	17%	19%	1 :
Neither or NA	19%	20%	1
Somewhat dissatisfied	29%	20%	1
Very desetteled	28%	35%	1
Opportunities to discuss	career goals		١,
Very satisfied	19%	19%	1.
Somewhat satisfied	296	25%	1:
Neither, or NA	17%	1396	3 1
Somewhat descripted	25%	29%	1
Very dessetelled	19%	17%	1
Opportunity for advance	ement		١,
Very satisfied	9%	7%	1
Somewhat satisfied	29%	20%	1 :
Heither or NA	27%	296	11
Somewhat desetsfied	27%	25%s	1 :

	Opportunity to use new	technologies		3.
76	Very satisfied	23%	17%	ī
7%	Somewhat satisfied	359	25%	£
0%	Neither or NA	17%	17%	Ł
196	Somewhat dissatisfied	1790	25%	1
76	Very dessatished	13%	13%	)
	Opportunities for interes	sting projects		1
146	Very satisfied	21%	14%	
146	Somewhat satisfied	30%	37%	
0%	Healther or NA	13%	14%	1
096	Somewhat descripted	22%	25%	ŝ
546	Very dissatisfied	9%	10%	1
	Ability to influence decir	sions affectin	e vou	1
9%	Very satisfied	199b	14%	ı
596	Somewhat satisfied	33%	29%	1
196	Heither or HA	13%	19%	н
246	Scenester (insunded	20%	26%	
96	Very deputefied	13%	15%	
	Access to training and ex	ducation		l
	Very sutted or	199	20%	1

		-
	Men	None
Workload		
Very settsfied	9%	79
Somewhat satisfied	28%	28%
Nother or NA	25%	21%
Somewhat desaterled	24%	27%
Very decadeled	18%	17%
How has your overall so	risfection	
changed over the past ye	nan?	
Increased	23%	27%
Stayed the same	29%	19%
Decreesed	56%	57%





### Grumpier Old Men (and Women)

III Who says things get better with apr? Certainly, not many of the respondents to our surrey. It many by armae, levels of satisfaction either showed no improvement or declined as the average age of IT wenters increased. The largued drops in substactious are in oppor-hantless to discuss career gooks, use new tech-mologies and detence. Scoring better. but still



needing improvement, are access to training and education and the ability of employees to influence decisions that affect them,		h 17	3 14	7	<u>`</u>
Age Boops	N 220	E.3.3	E.3.3	CEL	10.30
Sansfaction with salary					
Very satisfied	13%	1795	196	1590	1492
Somewhat satisfied	27%	32%	37%	33%	35%
Neither satisfied or dissatisfied, or NA*	20%	12%	1596	10%	1992
Somewhat dissatished	279b	254s	24%	28%	1995
Very dissellated	13%	1546	13%	14%	1495
Preguency and amount of bonuses					
Very satisfied	13%	4%	995	1796	19h
Somewhat satisfied	190	20%	179n	194	26%
Neither satisfied or dissatisfied or NA	1390	16%	1696	22%	1991
Somewhat dissatisfied	40%	1990	229n	27%	1992
Very dissatished	33%	43%	36%	36%	27%
Connection between pay and performance					
Very satisfied	13%	896	65h	79b	19h
Somewhat satisfied	13%	1990	1990	169h	1995
Nether satisfied or dissatisfied, or NA	1690	2%	15%	24%	2194
Somewhat dissatished	27%	2390	2995	2020	2790
Very dissatisfied	33%	30%	37%	29%	22%

	100	E		0.04	
Opportunity for advancement					
Very satisfied	27%	996	790	79s	895
Somewhat satisfied	27%	1990	23%	14%	190
Nother satisfied or dissets/feet, or NA	8%	23%	1990	2190	27%
Somewhat dissatished	20%	25%	24%	32%	77%
Very dissatished	20%	25%	27%	26%	32%
Opportunity to use new technologies					
Very satisfied	2790	21%	24%	20%	24%
Somewhat sansled	40%	4790	32%	29%	24%
Neither satisfied or dissatisfied or NA	0%	196	1994	129b	229n
Somewhat dissatished	209n	1690	1991	-23%	22%
Wery dissatished	13%	1399	12%	1990	840
Opportunities for interestors: process					
Very subsided	39%	1995	219n	199s	27%
Somewhat satisfied	27%	33%	3290	390	309
Neither satisfied or dissatisfied, or NA	09e	1995	15%	20%	150h
Somewhat dissatished	27%	22%	259n	2000	1964
Very dissatished	790	13%	701	996	8%
Ability to influence decisions affecting you					
Very satisfied	209h	129n	1994	1795	199b
Somewhat satisfied	339n	45h	29%	294n	24%
Norther satisfied or descatedard or NA	14%	16%	1995	10%	2091
Somewhat dispatished	20%	15%	199:	34%	169b
Vwy designed	1396	196	18%	12%	26%
Access to training and education					
Very satisfied	23%	1395	1895	119o	269s
Somewhat substied	20%	27%	28%	2690	3290
Norther satisfied or departed on NA	14%	1290	1396	259b	159.
Screwful dissented	1790	20%	209b	189h	189n
Very desanshed	20%	28%	2195	24%	14%
Workload					
Very satisfied	796	1394	890	6%	89-
Somewhat satisfied	539h	27%	25%:	259n	30%
Nother satisfied or desanteleed or NA	209h	23%	26%	20%	28%
Somewhat dissatished	20%	23%	24%	29%	229:
Very docatohed	0%	14%	139b	20%	16%
How has your overall satisfaction changed on	or the next	and a			
Incressed	4090	2696	27%	8%	46%
Stand the same	27%	Thin	1940	25%	359
Decreased	2096	599h	5595	579s	19%
	50.0	2910	23.41	24.5	44

#### Little Difference Between the Sexes

Opportunities to discuss career goals Way satisfied

Somewhat satisfied Neither satisfied or dissatisfied, or NA Somewhat dissatished Very descripted

If it is the glass ceiling for worsen in If finally been amashed? Or are women simply now being denied the ability to advance in their careers just so more as their male counterparts are? The re-sults of our survey seem to indicate the latter, as men and women gave very sine-lar scores to the same satisfaction questions. Other areas needing the most im-provement, according to both men and men, are frequency and amount of names, workload and connection be-

Sarisfaction with salary Very satisfied Somewhat satisfied

Neither or NA\*

Somewhat dissidished Way desatished

Frequency and amount of			Opportunity to use new		
Very satisfied	8%	8%	Very satisfied	23%	1796
Somewhat satisfied	1690	1340	Somewhat satisfied	3595	28%
Neither or NA	17%	20%	Neither or NA	12%	1795
Somewhat dissatished	23%	14%	<ul> <li>Somewhat dissatisfied</li> </ul>	1390	25%
Very dissatisfied	36%	4190	Very dissatished	13%	1396
Connection between pay			Opportunities for interes	dung projects	
Very satisfied	8%	891	Very satisfied	2190	14%
Somewhat satisfied	17%	1990	Somewhat sansked	30%	37%
Nother or NA	19%	20%	Neither or NA	18%	14%
Somewhat dissupplied	28%	20%	: Somewhat dissatished	22%	25%
Very dessatrated	26%	354e	, Very dissensited	9%	10%
Opportunities to discuss			Ability to influence deci-		
Very satisfied	16%	16%	Very satisfied	1995	14%
Somewhat satisfied	2%	25%	Somewhat satisfied	33%	29%
Nother, or NA	(79 <sub>6</sub>	13%	Nether or NA	19%	15%
Somewhat dissenshed	25%	29%	Somewhat dissatished	20%	26%
Way dissatished	19%	(7%	Very dissatished	13%	15%
Opportunity for advance			Access to training and ex	fucation	
Very satisfied	8%	7%	Very satisfied	15%	20%
Somewhat satisfied	18%	20%	Somewhat satisfied	27%	26%
Neither or NA	21%	27%	Nother or NA	18%	1170
Somewhat dissatisfied	27%	25%	Somewhat dissensived	1796	20%
Very dissatished	26%	27%	Very dissended	239	239

20% 22% 15% 25% 20% 20% 14% 26% 10% 23% 23% 27% 1996 1996 1996 2796

	Opportunity to use new	rechnologies		Workload
8%	Very satisfied	23%	1796	Very Sabshed
1990	Somewhat satisfied	35%	28%	Somewhat sanch
20%	Neither or NA	1295	1796	· Neither or NA
14%	Somewhat dissatished	1300	25%	Somewhat droug
4190	Very dissatished	13%	139b	Very dissanshed
ice	Opportunities for interes	dung projects		How has your
891	Very satisfied	2190	149b	: changed over t
1990	Somewhat satisfied	30%	37%	Increased
20%	Neither or NA	18%	14%	. Stayed the same
20%	: Somewher dissatished	22%	25%	Decreased
35%	. Very dissensited	9%	10%	
	Ability to influence deci-			i i
16%	Very satisfied	1995	14%	
25%	: Somewhat satisfied	33%	29%	
13%	Nother or NA	19%	15%	
29%	Somewhat dissatished	20%	269o	1 E
(7%	Verydissatished	13%	15%	OHOUR S
	Access to training and ex	fucation		1 - R
7%	Very satisfied	15%	20%	1 483
20%	Somewhat satisfied	27%	26%	
27%	Nother or NA	18%	1190	· Figure
25%	Somewhat dissensived	17%	20%	3887
27%	Wry dissatisfied	23%	2390	100

50.0	200	2540	70.00	
more	-	-	100	-
Workin	od			
Very sale			9%	790
Somewh	at sanched		284o	2894
Nether o	r NA		25%	2190
Somewh	at dissalish	ed .	28%	279
Very ckss	anshed		18%	1796
Hose ho	s your on	molf satis	former	
	dover the			



Computerworld's Annual Job Satisfaction Survey Methods

39%

13% 25%

To Privatory and March Conference and Conference and Advanced and Conference and

### Patents in E-Commerce

#### DÉFINITION

A patent grants a property right to an inventor for 20 years, prohibiting others from using the invention in the U.S. As companies venture into the unchartered territory of e-commerce, several seek to patent their work. But the spread of e-commerce patents has raised questions about whether they are too broad and what, if any, limits should

THE RISE OF e-commerce has pro-duced a flood of Internet-related patents that make iningement as easy as a single click of the mouse

be imposed.

learned that the hard way when Amazon.com Inc. slapped the company with a lawquit claiming infringement on Amazon's patent for single-click technology, which lets repeat customers shop the site without having to re-enter personal and credit-card information.

The flood of internet patents, say attorneys, is a natural evolution of the 1990s trend toward patenting not only hardware but also software and business methods.

As a result, many experts say information technology workers may be in for a rough ride as they are forced to learn about patents and patent infringement for the same reason that corporate management was forced to learn about IT: Because ignorance can

touch off a business disaster. Others say IT professionals can breath easy because the flood of patents will soon subside as the U.S. Patent and Trademark Office gains familjarity with Internet issues and applies stricter standards to ture patents. Such assurances have done little to ease concerns about the number of patents being issued today and the broad

protections they provide Jonathan Band, an intellectual property attorney at Morri son & Foerster LLP in Washington, says there is widespread concern over whether patents like Amazon's are too broad. "A lot of people think [Amszon] shouldn't have been he disagrees.

able to patent that," Band says. Kenneth K. Dort, an attorney and a senior litigation partner at Gordon & Glickson LLC in Chicago, agrees. Internet patents, he says, "have kind

> AMAZON.COM's patented one-click system enables repeat online owners to place orders without re-entering credit-card or address information. Part of the petent covers the way Amazon stores billing and shaping data. In December, Amazon obtained a preliminary court rejunction against Barnesandhoble.com that prevents the Ama-

zon competitor from using the one-click system PRICELINE COM patented a method by which a customer could propose a price for a product or service, and the order would be filled If a seller was willing to accept that once. Prioritine com gued Moresoft Corp. and its Expedia Inc. travel service for allegedly violating celine's method of letting consumers propose their own prices for flights and hotel rooms.

Part of the problem, explains Dort, is that attorneys, fearing the repercussions of failing to patent something important,

advise clients to patent some things just to cover themselves "So you literally get simple processes or methods of business organization being patented." he said.

For instance, many people questioned the validity of Priceline.com Inc.'s patent on its method of letting customers propose their own prices for products or services on the 'I think the Amazon patent

a rather discrete way of how to maintain the confidentiality of information," says Dort, "But the Priceline.com patent gets a little closer to the line. What it describes is way of conducting business. I think Pricelinetype patents really do go too far afield by trying to keep people out of the industry in

But Jeffrey R. Kuester, an intellectual property attorney and partner at Thomas, Kayden. Horstemeyer & Risley LLP in Atlanta and chairman of the American Bar Association's special committee on potents and the Internet, says

Kuester says the Internet patent problem is exaggerated by people who don't understand what the patents protect. "It's easy to overestimate the breadth of a patent applica-

tion if you read only the title or the abstract. Nine out of 10 patents are not as broad as they sound," he says. Norman Imamshah, director

for computing and telecommunication services at Central Washington University in Ellenburg, Wash., doesn't see much of a threat in the number of Internet patents being approved.

His hope is that the government, by granting a large number of Internet patents, will promote e-commerce by rewarding innovation. That would benefk most IT workers, he says

Still, the patent debate isn't ver yet, says Imamshah. "It's a very sticky issue, and it will be with us for a long time," he predicts. "But right now, it's really a lowyer issue."

#### Proceed With Caution

Kevin Rivette, chairman of intellectual property management firm Aurigin System Inc. in Cupertino, Calif., and co-author of Rembrandts in the Attic, a book about the value of patents, says some Internet patents are probably too broad But he cautions IT industry leaders not to compound the problem by patenting everything connected with electronic business or the Internet.

Instead, he suggests that they adopt new ways of deciding what to patent IT needs to ask marketing. What are the top five features that customers need in this new product?" Rivette says.

Then they need to ask the same question of custom service, sales, production and research and development. Typically, they'll find there "in the long run, most of the IT will be two to four top features people in e-commerce are not that everybody series are critical to the success of the product. Those are the things you should patent." Rivette predicts that the In-

ternet patent flood will take five or six years to subside. In the meantime, he favors the creation of Web sites where patent claims could be easily read by the people who might help invalidate them by citing

#### First On The Scene

Kevin Rivetta, co-author of Rembrands in the Attic, an ctual property book put ed by Harvard Business School Publishing, says Wired megazine could probably have patented the now-ubiquitous

Web page banner advertise A patent on banner ado which, when clicked on, Iran liser's Web site, would now be quite volumble. Rivette suggest that Wiredshould have engaged in what he calls "ch point analysis" to figure out what it should patent.

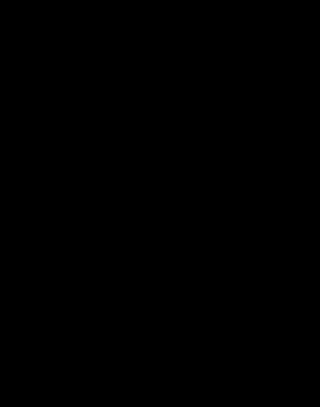
se the times that will on ve same industrywide prob that you are solving," Rivett says. "If Wired didn't patent any other stuff, they should have petersted the barner ad, because it was the one thing do. It was the industryer

problem that they solved - the - Steve Alexand the existence of "prior art."

Demonstrating previous use of something is a key way of invalidating a patent, he says. Band also predicts that "the rush of Internet patents will slow down. People will continue to apply for them, but the patent office will not be issuing as many putents, or [it] will do it more carefully and properly. As a result, Band says that

going to be affected, although those being sued probably will be hurt." Dort isn't as optimistic about a slowdown in the patent boom. "I don't see there being any break until the courts or Con-

gress steps in," he says. Alexander is a freelance writer in Minneapolis. Contact him at sorion99@wahon.com



### Patents in E-Commerce

#### DEFINITION

A patent grants a property right to an inventor for 20 years, prohibiting others from using the invention in the U.S. As companies venture into the unchartered territory of e-commerce, several seek to patent their work. But the spread of e-commerce patents has raised questions about whether they are too broad and what, if any, limits should be imposed.

THE RISE OF e-commerce has pro-duced a flood of Internet-related patents that make inent as easy as a single

ed that the hard way en Amazon.com inc. slapped the company with a lawsuit claiming infringement on Ama-zon's patent for single-click sev, which lets repeat tomers shop the site without having to re-enter personal and credit-card information.

The flood of Internet patents, say attorneys, is a natural evolution of the 1990s trend toward patenting not only hardware but also soft-

ware and business methods.

As a result, many experts say information technology workers may be in for a rough ride as they are forced to learn about patents and patent in-fringement for the same reason that corporate manageent was forced to learn about IT: Because ignorance can

touch off a business disaster. Others say IT professionals can breath easy because the flood of patents will soon subside as the U.S. Patent and emark Office gains famil iarity with Internet issues and

applies stricter standards future patents. Such assurances have done little to ease concerns about the number of patents being

issued today and the broad Jonathan Band, an intellectual property attorney at Morrison & Foerster LLP in Washington, says there is widespread concern over whether patents like Amazon's are too broad. "A lot of people think [Amazon] shouldn't have been

able to patent that," Band says, Kenneth K. Dort, an attorney and a senior litigation partner at Gordon & Glickson LLC in Chicago, agrees. Internet patents, he says, "have kind

f gotten out of hand."
Part of the problem, explains Dort, is that attorneys, fearing the repercussions of failing to patent something important, advise clients to patent some

things just to cover themselves. "So you literally get simple processes or methods of business organization being patented "he said.

For instance, many people questioned the validity of Priceline.com Inc.'s patent on its method of letting customers propose their own prices for products or services on the

"I think the Amazon patent may be patentable because it is a rather discrete way of how to maintain the confidentiality of emation," says Dort, "But the Priceline.com patent gets a little closer to the line. What it describes is way of conducting business. I think Pricelinetype patents really do go too far afield by trying to keep people out of the industry in

But Jeffrey R. Kuester, an intellectual property attorney and partner at Thomas, Kayden, Horstemeyer & Risley LLP in Atlanta and chairman of the American Bar Association's special committee on potents and the Internet, says

he disagrees Kuester says the Internet patent problem is exaggerated by people who don't understand what the patents protect. "It's easy to overestimate

tion if you read only the title or the abstract. Nine out of 10 s are not as broad as they sound," he says.

Norman Imas for computing and teleco nication services at Central Washington University in El-lenburg, Wash, doesn't see much of a threat in the num of Internet patents being ap-

His hope is that the government, by granting a large number of internet patents, will promote e-commerce by rewarding innovation. That would benefit most IT work-

Still the potent debate isn't over yet, says Imamshah. "It's a very sticky issue, and it will be with us for a long time," he predicts. "But right now, it's really a lawyer issue.

#### Proceed With Caution

Kevin Rivette, chairman of intellectual property manage-ment firm Aurigin Systems Inc. in Cupertino, Calif., and co-author of Rembrandes in the Attic, a book about the value of patents, says some Interne patents are probably too broad But he cautions IT ind leaders not to compound the problem by patenting everything connected with electron ic business or the Internet.

they adopt new ways of deciding what to notent "IT needs to ask marketing. What are the top five featu the breadth of a patent applicathat customers need in this new product?" Rivette says. Then they need to ask the same question of customer service, sales, production and research and develops Typically, they'll find there "in the long run, most of the IT will be two to four top features that everybody agrees are critical to the success of the prod-

Instead, he suggests that

uct. Those are the things you should natent Rivette predicts that the In-ternet patent flood will take five or six years to subside. In the meantime, he favors the creation of Web sites where patent claims could be easily read by the people who might help invalidate them by citi

he existence of "prior art." monstrating previous use of something is a key way of invalidating a patent, he says. Band also predicts that "the ruth of Internet patents will slow down. People will contin ue to apply for them, but the patent office will not be issuing as many patents, or [it] will do it more carefully and properly."

As a result, Band says that people in e-commerce are not going to be affected, although those being sued probably will Dort isn't as optimistic ab a slowdown in the patent boom. "I don't see there being any

break until the courts or Congress steps in," he says. I Alexander is a freelance writer

in Minneapolis. Contact him at sorion99@vohoo.com. Are there business terms you would like to learn about in QuickStudy? Please and your ideas to exicknut/oilcommonweald com





### Winsurf Mainframe Access

Web enable your mainframe applications: IBM, Bull, DEC, UNIX

#### Intranet

Browser-based Terminal Emulation

Emulation
downloaded
to the desktop.
Full-function
emulation: APIs,
file transfer, printing.
Central administration/control.
Automatic deployment to

user desktops.

e-Business Application Rejuvenation

Easy to use development tools enable tight integration of host applications with the user's interface to enterprise data.

#### Extranet HTML Conversion

Automatic conversion of host data streams to HTML.

Nothing is downloaded to user desktops.

Supports any browser-equipped device: PC, NC, Mac, OS/2, Windows CE

FRANCE
ICOM Informatique
18, avenue Winston Churchill
F-94227 Charenton Cedex
Tel.: 33 (0) 1 46 76 45 59
http://www.icominfo.fr

DEUTSCHLAND
ICOM Informatics
Stefan-George-Ring 29
D-81929 München
Fal: 49 (0) 89 930 861 50
Fax: 49 (0) 89 930 5184
http://www.icominfo.com

UNITED KINGDOM
ICOM Informatics
Exchange House, 494 Midummer Bid
Central Mitton Keynes MK9 2EA
Tel. :44 (0) 1908 677616
Fax: :44 (0) 1908 670013
http://www.icominfo.com

USA ICOM Informatics 11824 Jollyville Road - Suite 500 Austin, TX 78759 Tel: 1 512 335 8200 Fax: 1 512 335 9110 http://www.icominfo.com ground in C. C++ and Win-

working with hardware but

I want to get into an e-com-

dows NT networking. I've been

still focusing on software. Now

merce company and work on

- TRANSACTION-ORIENTED

software applications. Do I

\*Oriented will need to

learn that, for e-commerce

applications jobs the chal-

lenging part is the speed (at)

which you're doing the work

and the fact that you're oper-

clock] world where you can't

says Joe Kwan, vice president

of technology at CareGuide.

com in San Francisco, a com-

Kwan says the logic itself

pany specializing in elder-

and child-care resources.

be down even for a minute,"

ating in (an around-the-

have o chance?

Dear Oriented:

### Dear Career Adviser:

I am a 58-year-old male who started as a computer operator, eventually rising to programming manager in 1976. That company was sold, and I obtained my certified network administrator/Certified NetWare Engineer certification, working my way back into programming. able to find your résumés

or will screen you out. Addi-

Until last February I was at a consulting firm doing Y2k remediation on Cobol and Assembler programs, Now I don't pet interviews, and when I do I'm told I don't have enough experience.

Bear Career Advisor

I am a newly trained low-

level Visual Basic programmer

seeking an internship with a

firm that uses Visual Basic.

Dear Confused and Newbie:

You have something in remmon! Whether overly

experienced in an older job

you both have skill sets that

typically don't generate jobs

or by applying via a com-

namy's Wah site

ugh Internet job boards

In fact, recruiters searching

résumé databases will be un-

market or just coming in,

tionally, at job fairs, you're at a disadvantage against competitors with skills that better match companies' requirements.

The solution: Increase both your personal contacts and your energy. Take courses, go into online discussion groups and attend every technical event, user group meeting and trade show you can. When you talk about your

How do I start looking for a job? skill set, exude commitment! - NEWBUS Do you program at home figuring out solutions to com plex problems? Can you mill apart a particular application and show you really know it

inside out? If so, this kind of passion - plus a person to help you - will transcend the rough sledding you're both experiencing now

Dear Career Advisor: I have a bachelor's degree in

computer science with a back-

### ervice Provider

**larketolace** Debuts

n users. Vendors also have fre us to the Web site and can cre-basic vendor profile. They can

Schools Make Profit The New York City Board of Educa tion on April 12 voted to launch the first kinderparten-through-grade-12 too generating internet portal in the country. The revenue would be used to buy hardware, including laptage for every fourth-grade sta-dent and teacher, beginning next year. The plan would also pro mell addresses for the city's 1.5 Mon students and 150,000

abinaton. The survey of 3,218 ss systems in the U.S. - cut of the 3,516 in operation - show that there were 86 million subscribers last year, up from 86 mil Son in 1998 and 55 million in 1997.

#### vecus reached \$40 billion in 1999, up from \$33 billion in 1998 according to the CTU survey. The year was \$41.24.

### Training Tax Credit

To help combet the state's shor of information technology works Arizona Gov. Jane Dee Hull said earlier this month that she plans to dits of up to \$1,500 per year for

automation worlds, such as configuration management and version control. But you will need to at least "talk the talk" regarding software applications specific to dotcoms, plus demonstrate some sensitivity to issues such as transaction databases and publishing and e-commerce software if you want to get

once a manager gives you a

chance, with three to six months of hard work you could re-emerge as a com-Kwan predicts.

Dear Career Adviser: I have a bachelor's degre in computer science and work in information technology. I was thinking of getting a master's degree in information systerns, but what I really want is to work in some lead inv-edge technol-

ogy such as speech recognition What do I need to do next, and when should I look? - FREE SPEECE

Dear Speech: You'll most likely need to move back to your computer science origins to pursue this

e in Scottsdale and the lefe

E-Commerce Doubles

than deabled last year, reaching \$33.1 billion in Horth America, The

study, conducted by online retails trade association Shop.org in Silv Spring, Md., and The Boston Con-

sulling Group, predicts the figure will climb to SOLI billion by year's

and. Travel, computer hardware as software, and financial brokerage

rs, and fi

A study of ordine retail activity

AT&T Corp., IBM, Speech-Works International Inc., Tellme Networks Inc., Be-Vocal Inc. and TelSurf Networks Inc. are all seeking people who are well-versed in platforms and standard application programming interfaces, and for those who can work on programming hired. The hottom line is that annlications using emerging standards such as VXML Java. ECTF S.100, CTMedia, C and C++, says Jay G. Wilpon, director of advanced tent e-commerce technocrat, speech technologies at AT&T Bell Laboratories in Murray

HILNE For these firms, a prize hire has those skills, plus a background in either digital signal processing, linguistics and

computer science or human-factor design. This is the "art" that's used to build complex annlications since any successful application of speech has a

strong human factor compone If you're interested in inventing the best speech recognizer in the world, join the Sig-

nal Processing Soclety, which is part of the Institute of Electrical and Electronics Engineers Inc. (www.

ieec.org), and expect lots of



ng to a study rule

icage. The study, or subab Corp. in Son Jose, als reported that market m sao a reajor shift in reve ment and order fo

### and add the information to their ompany profiles.

here, admirás return and au t personnel, the board said

#### Wireless Use Soars

in a dot-com world is a lot easier and that there is some overlap between the dotcom and electronic design hot field. Companies like annual survey released earlier the opy Training Tex Credit Act would be the first such legislation in the industry associations, including a Arizona Software & Internet Asso





COMPUTERWORLD

#### CONFERENCE

June 19-21, 2000 Marriott Desert Springs Resort & Spa Palm Desert, CA

At Computerworld's Premier 100 IT Leaders Conference. June 19-21, 2000 at the **Marriott Desert Springs Resort** & Spa, you'll meet and learn from the finest leaders in information technology today. Information technology today.
Since many who will attend
and present will be
Computerworld's Premier 100
IT Leaders – Fortune 1000
IT executives honored by
Computerworld as outstanding
practitioners of leading-edge
you'll see early adoption
and busivessmedia.



SECURITY

REGISTER TODAY



**ASPs** 

, June 21, 200

HIRING





### Meet Your Future Backup – ADIC's New Scalar 100

A new standard in scalable tape libraries from ADIC, the Scalar\* 100 has all the features you want in a backup solution now and in the future.

Unmatched Scalability. ADIC's Scalar 100 starts out as a one- or two-drive, 30-cartridge DITape library, comparably priced to smaller Compaq and HP units. Then it scales easily and cost effectively up to 6 drives and 60 cartridges to meet new storage demands and protect your investment.

Easy, Plug-in Connectivity. Simple plug-in modules let the Scalar 100 adapt to your changing storage needs-SCSI, SAN, or NAS. More Storage in Less Space. With 50% more storage capacity than comparably sized products, the Scalar 100 packs 4.8TB\* of storage capacity into only 14 rack units, saving valuable space for future growth.

Drive-Independent Design. Backup with DLT today, and with AIT, LTO Ultrium, and SDLT models tomorrow.

Unfailing Protection. Enjoy the highest level of service and support, including a full year of free on-site service from ADIC, the leader in open systems data storage solutions.

# TECHNOLOGY

#### SMART PACKAGES

Motorola has developed an improved radiofrequency identification technology that promises to have applications in everything from inventory and checkout control to amusement park admission tickets. 84

### HEALTH SPECS

Health information executives last week welcomed the launch of a coalition of 23 IT vendors and health care organizations that will define specifications for authenticating healthrelated transactions over the Web. \$6

#### CRACKING THE CURVE

In one of the largest distributed computing efforts ever, \$200 computers spent four months cracking the encryption method likely to be used to secure next-generation cell phones and other wireless devices. Experts are divided over what this means for the future of the technique, known as elliptic-curre cryptography, \$60

#### QUICKSTUDY

See our tutorial on Web content-management systems, which label and track information that's placed on a site so the data can be easily located, modified and reused, 72

# SPEEDY DELIVERY

Not all content-management services are created alike. They all aim to speed delivery of Web content to users, but you need to consider crucial differences in technology and architectural approaches when choosing one of these providers, users and analysts said. > 65

# T OUTLOOK Charles Wang, CEO of

Charles Wang, CEO of Computer Associates, answers Computerworld's questions on security, e-commerce, IT and social change. He says he's worried that the perspective of the individual customer is being lost in the changing IT landscape. § 88

#### WIN 2K MOVES To server apps

Only weeks after launching Windows for Express Networks 1.0, Microsoft quietly rolled out another embedded operating system — this one based on Windows 2000.

# ECURITY

Week 7: Our fearless security manager is still looking for a batch file that will time-stamp his firewall logs, can't believe how hard it is to navigate some vendors' Web sites and lusts after a rack-mounted firewall implementation. • 70

#### EMERGING Companies

With secret shoppers, Buyer Touch adds the human sensibility to gathering and analyzing e-commerce site statistics. That capability may put this start-up ahead of its rivals. > 78

# MY PDA'S BETTER THAN YOURS

TWO REVIEWS EDITORS SQUARE OFF to debate the merits of their favorite personal digital assistant. In one corner, Mathew Schwartz, the Palm fanatic. In the other corner, Russell Kay, a recent Pocket PC convert. Two editors, two handhelds, one question:

Which is the better machine? There are strong words from both sides.



as both the rag's source of pow-

er and its master clock. The tag

term - the substrate can be torn, folded, spindled or mutilated, and the tag will still operate properly. Because there

isn't a capacitor to charge up, the tass can't be detuned. Tears, folding or punched

# New Wireless Technology **Promises Smarter Packages**

Motorola's BiStatix labeling could enable anything printed to be tracked

UST AS the optical laser scanner revolutionized grocery shopping, a new technology from Motorola Inc. promises to take that kind of identification and control to a new level, applying it to nearly anything that can be primed or have a label stuck on it. The basic idea is a new take on wireless, radio-frequency identification (RFID), a technology that's been around for years.

How It Works: Old Style

Until now, RFID systems have used the electrical property called inductance and have required the RFID tag or transponder - to contain three elements: a metal coil antenna to generate electricity; a computer chip containing a radio transcriver, an alog-to-digital converter. memory and a processor; and a core of air or ferrita mel

Some tags also have their own batteries In operation, the RFID reader generates a low-level radiofrequency magnetic field that

nates with the tag's metal coil and capacitor, creating an Statix reader/writer generates

cyclically modulates its data contents and transmits it to the electrical signal that powers reader's receiver circuit. The the computer chin which then reader decodes the data signal transmits its stored data back and formats it for sending to a to the reader. The process host computer for further proworks well, but the tags are exceesing. pensive - as much as \$200 each. In recent years, that cost

One of the significant advantages of any RFID system is that many different items has fallen to Jess than \$1 per such as the eotire consive for all but high-priced tents of a shopping cart or of a scaled

be read all an once and without remurins physical contact. The

Statix technology also characteristics

that make it suitable for a wide variety of new situations and applications First, it's cheap. BiStatix uses an elegantly simple manufacturing process that can be im-

strate, with no need for a snecial interconnect. Thus, it can plemented at the point of be put directly on a package prinsing or paper converting. during manufacture, or it can Conventional printing processes replace expensive coil-BiStatix works on a capaciwinding, stamping and etchtive coupling principle. A Biing. (Information on exact pricing was unavailable.)

ed into or applied onto almost any object. BiStatix is physically flexible and can be applied to corners, curved surfaces and odd shapes without danger of antenna breakage. Any nonconductive material can serve

as a substrate. BiStatix chins are less than 250 microns thin

holes won't make the BiStatix tags inoperable, as long as the chip remains intact. Tags can be read without a clear line of sight, and their readability is unaffected by moisture, dirt, dust or paint Finally, BiStatix tags have read/write capability, so that an existing stock of tags can be reprogrammed after manufacture or initial application. The data they con-

tain can be changed, updated and/or locked. Taken together, th traits make the new sys-

tem well-suited for a wide variety of shortterm, high-volume applications, ranging from supermarket inventory and checkout control to hotel keys, hospital patient wristbands, themepark admission tickets



(0.010 in.), with a surface area of less than 3mm. Thus, they can be easily

used in an unobtrusive manner. For example, a roll of preprinted. BiStatix-enabled tickets could be programmed and dispensed from a printer because the system's low profile and flexibility allow it to be nsed in roller-driven devices. Third, the system is relatively indestructible in the short gy would be beneficial.

been experimenting with "smart mail," using BiStatix as an adjunct to bar codes for tracking individual pieces of mail on route by "smart-mail boxes" or for quickly locating a piece in a stack of envelopes or a warehouse full of puckages Luggage control and identification at airports is another area where BiStatix technolo

# **Web Coalition to Define Health Care Specs**

tag, but that's still too expen-

BiStatix, a new technology

from Schaumburg, III.-based

Motorola, changes that equa-

tion dramatically. BiStatix tags

have only a silicon chip that's

attached to carbon ink elec-

trodes printed on the back of a

paper label. Tags are printed

by any known printing tech-

name on standard printing

equipment, and the electrodes

can be virtually any size and

The RFID silicon is simply

attached to the printed sub-

items.

A Better Way

he added later

It would help users prepare for HIPAA

Health information executives have welcomed the launch of a coalition of 23 vendor and health care organizations that will define specifications for authenticating bealth-related

sactions over the Web. In addition to heavyweights such as Intel Corp., Cisco Systems Inc., Sun Microsystems Inc. and Oracle Corp., members of the coalition - dubbed

clude MedicaLogic in Hillsboro, Ore., VeriSign Inc. in Mountain View, Calif., and Aetna U.S. Healthcare in Blue

Gregory Miller, chief Internet strategist at MedicaLogic, said the coalition's efforts will enable health care organizations to werify the authenticity of the sender or receiver of electronic health information.

For instance, a pharmacy would be able to determine whether the person sending a prescription is a licensed tions use a variety of methods - including smart cards, pass words and biometric devices - to authenticate users.

#### The coalition's goal would

be to establish digital credentials for medical professionals and create specifications so that various methods of authentication would be interonerable for transactions such as lab tests, claims submissions and pharmacy orders.

"Since there's no single minant Internet health care

company out there, these organizations [coming] together to determine [specifications] is really critical," said Scott Cebula, executive director of in-Beach, Calif., health care provider MemorialCare. However, Cebula said, he would like to see some user representation

> Miller said the 11.19 Working Group hopes to open memb ship to users by early next month and noted that two dozen health care providers have already expressed an interest in joining. The group also expects to publish a draft of its guidelines by next month said Miller.

In Texas, Medical Center of

Lewisville CIO Connie Salsman said the group's specifica-tions would help bealth care organizations gear up for the Health Insurance Portubility and Accountability Act (HIPAA)

Though the legislation has yet to be handed down in its final form, HIPAA will impose fines and possibly jail time for officials of health care organi zations that don't adequately safeguard the privacy and security of electronic information.

"There has to be a way for the average user to know that what [the user is] doing is comparable" to what the HTPAA legislation will entail for users said Salsman. "HIPAA will require a better way of authenticating [users]."

# **Network Cracks Mobile Encryption System**

Wireless shown to be vulnerable

After four months of number crunching, a large, distributed network of computers worldwide has cracked an encryption method that will likely secure the next generation of wireless phones and other devices. The unprecedented effort revealed the strength of the encryption system but also highlighted some potential

"Just as crash tests by automobile manufacturers contribute to the safety of cars, this experiment helps improve cryptosystems being deployed to secure electronic communi cations and commerce," said Daniel de Rauglaudre, a research engineer at the French National Institute for Research in Computer Science and Con-trol (INRIA), which an-

nounced the results last week. Irish mathematician Robert Harley and three INRIA colleagues, including de Rauglaudre, revealed that a brute-force collaborative effort by 9,500 computers on the Internet had found the 109-bit key that had been used to scramble a message. The message was encrypted using elliptic-curve cryptography (ECC), which calculates the number of points on a curve and uses that information to generate keys that secure data.

#### Kews Have Size Advantage ECC could be useful for mo-

bile devices built around processors with less power than those found in PCs, because the algorithms require fess computational power to encode and decode data

Many software vendors use 1,024-bit RSA keys In their secure applications. But Robit Khare, president of the security research group 4K Associ-stes in Irvine, Calif., noted that ECC keys can be up to 100 times faster and five times smaller than RSA keys. He added that ECC keys used in digital certificates for cell es can allow those devices to securely carry digital wallets containing credit-card

tant to find faster and smaller encryption codes, and this demonstration shows that eltiptic-curve technology that can be a fraction of the size and done much more quickly on more limited computers is just as strong," said Khare. The search for the 109-bit

key was sponsored by Certi-WHAT IT MEANS Elliptic-curve cryptography (ECC) calculates the number of

points on a curve and uses this mathematical information to generate buys that secure data To improve security, arbitrary curves are picked at rand and changed frequently, But most cryptosystems use fixed curves that have particular proportion that make keys easi er to generate. The elliptic-curve challenge showed that these properties could poten-tially endanger socurity.

com Corp., a cryptographic company in Toronto that wanted to encourage researchers to test the security of ECC. The search challenge, known as ECC2K.108, was solved by

what appears to be the world's largest network of distributed computing power. The effort, which was completed on April 4, included 1,300 volunteers in 40 countries who tried every key combination until they found one that worked. According to the INRIA twothirds of the computation was done on Unix workstations

and one-third on Windows PCs. On a single 450-MHz machine, it would have taken an estimated 500 years. The project used open-source software that Harley developed to calculate more than 2 million billion points on

a type of elliptic curve called a Koblitz curve, which was used by Certicom. Of these points,

2 million "distinguished points" were sent to an AlphaServer at INRIA, where a Web site allowed participants to follow the effort's progress in real

"The amount of computation we did is more than whar is needed to crack a secret-key system like (Data Encryption Standard) and enough to crack a public-key system like RSA of at least 600 bits," said Arien Lenstra, vice president of the corporate technology office at Citibank in New York and a participant in the project.

#### Strengths and Weaknesses

But the project highlish the relative weaknesses of some curves with special prop erties and confirmed that ran dom curves are best for optimal security. Harley noted that the computation was only about one-tenth of what nor maily should be required to crack a 100-bit curve because Certicom chose a curve with properties that helped speed up the attack. "This underlines the danger of adopting particu lar curves and the need to pick random ones with no special characteristics," Harley said. Lenstra pointed out that RSA still has the advantage over ECC because RSA keye are less cumbersome to gener ate and companies like Certi com are not willing to share information on their curves. There are many mathemati cians who are still concerned

about the security of elliptic

curve," said Lenstra

Despite concerns, tl still confidence in the strength of ECC. Khare noted that ECC has been written into the new Wireless Application Protocol standards as an optimized version of the Wireless Transport Layer Security protocol, for merly known on the desiston as the Secure Sockets Layer star dard. He pointed out that wire less software developers such as Phone.com have already thipped software with ECC to handset manufacturers and that its deployment is just a matter of carrier rollous.

# **Content-Delivery Services** Vary in Their Approaches

Look before you

leap, say analysts BY JANKUMAN VIJAYAN Not all content-delivery services are created alike. They're all aimed at speeding delivery

of Web content to visitors, but there are crucial differences in technology and architectural approaches to be considered when choosing a provider, users and analysts said "You need to understand what your bandwidth usage atterns are" now and in the future, said Chris Doell, CEO of Sportstalk.com, a Palo Alto. Calif.-based sports Web site. Also crucial are factors such as a service provider's perfor-

mance-monitoring and reporting abilities and the demographics of visitors to a Web site, he said. Signing up with a service provider that has a global reach makes little sense for instance, if most of your users are from North America. Content delivery services are becoming increasingly popular as Web-site performance becomes a key issue Such services cache frequently accessed static content - such as images and graphics - on

distributed servers that are closer to the Web user than is the original server Moving content to the "edge of the network" reduces the congestion on a content provider's primary site and reduces the time taken for a Web page to be served to a user.

Studionext.com Corp. Woodbridge, N.I., for example, was able to significantly boost the speed at which its video content was served by using Akamsi Technologies Inc. as a content-delivery provider. The move "allowed us to save on end-to-end infrastructure costs," while improving perfe mance, said David Wu, CEO of Studionext.com.

The fundamental value of all these providers is the same," said Greg Howard, president of The HTRC Group LLC, a San Andreas, Calif. based consultancy. But there are some core differences in technologies, business approaches and scale, he added. For starters, there are two approaches to delivering such services: facilities-based and multinetwork services, How-

and sold Facilities-based providers such as Digital Island Inc. in San Francisco, Exodus Communications Inc. in Santa Clara, Calif., and other mojor

ties own and operate their networks and data centers. Such companies make sense for users who want providers that can offer Web, application hosting and other outsourcing services in addition to content

delivery, Howard said. Multinetwork providers such as Akamai in Cambridge, Mass. and Adero Inc. in Boston place their own servers in as ma backbone networks as possible. The focus is more on users who are looking mainly for content-related services and not so much for outsourcine. And there, are differences

among multinetwork provid-ers as well. Adem, for instance, has deployed 115 large Unix servers on multiple networks to cache static, or unchanging, content. The servers

also mirror and host portions of customer applications that will allow Adero to serve up dynamic, or fast-changing. content faster to Web users Akamai, which is one of the biggest companies in this space, relies on a network of 3,000 Linux servers worldwide

to cache and deliver content. Unlike some content pro-viders that tend to route data over the shortest path, Akama uses routing and caching soft ware to examine the state of the Internet at the moment and find the fastest — not necessarily most direct - route to the user, said leff Young, a marketing managet at Akamai

Mirror Image Inc. in Wo burn, Mass., is setting up large data centers worldwide con plete with mainframe, multiter abyte storage facility and high end Unix server technologie The data centers will act as sore of regional hosting sites for content providers, serving up a wide variety of content Others such as Epic Reals

Inc. in Richardson, Texas, are targeting the company's ser vices mainly at e-commerce sites. A core differentiator for Epic Realm is its ability to deliver "perishable content," said Keith Lowery, the comp chief technology officer.



I am data.

Yesterday I was just numbers on paper.

Today I am the lifeblood of business.

I am the genetic material

that flows between companies

to create products,

deliver service,

bulld companies.

enhance life.

And I am forever

committed to commerce.

Who is committed to me?

We're investing 6 billion dollars in the most far-reaching deployment of broadband out there.

We're one of the largest network integrators, and a provider of advanced, global

eCommerce solutions. We're SBC. The combined strengths of Ameritech,

Pacific Bell, Southwestern Bell, SNET and now Sterling Commerce.

You're demanding more. Start appecting more.

## TECHNOLOGY

# Computer Associates CEO on IT's Changing Landscape

On the eye of last week's CA-World 2000, Computer Associates Interne ional Inc.'s annual conference, CA

tolked with Computerworld about e-commerce, the chonses it is making to the economic and social landscape and

infrastructure

O: There's a gap between the reality and public option of privacy and security and what's being done to ensure them. How do you address

A: Security and privacy are very important on the Web. People have seen what has happened, have an idea of what can happen. People think [February's] denial-of-service attacks were something really sophisticated. Forget it. They were nothing compared to the real harm that could be done.

Is there any way ultimately to protect all of this? Probably not. But it is something that we can continue to work on. This is like a war. Offensively, new Blackingl tools will be developed - they're available on backer sites. Defensively, there'll be new fixes.

The software exists to stop denial of service. But it obviously wasn't applied at those sites that were attacked

0: What can the information technology indus and internet service providers do about risks in

business to consumer o commerce?

A: We have all the technology. It depends on the company and bow they want to protect themselves and their customers. They are at risk. If a cable company does not recognize that and

[won't] do something about it, their networks are wide onen. My mother has a credit card she uses only on the Web. She's only used it on sites that say they're secure, but three times so far things have started showing up on her account that she didn't charge, and we've had to sbut down the account. Obviously there's a risk

The world we live in and the marketplace we deal with are expanding so rapidly that you can make all of these mistakes and they're hidden by the expansion rate. The individual experience gets lost. You and I may buy things on the Web, and it's not a good experience, so we say we're never going to that site again. Meanwhile, in just the last two hours, another 100,000 people signed up to get on the Web

[For dot-coms], it's a mad search for as many customers as they can get. [Dot-coms say:] "I gotta service as mam of these as I can as fast as I can because I want to be the one who says I've got a million subscribers. Because I'm going to be judged by how many subscribers I have, not by how much money I'm making. So what if I lose 100,000 [notential customers]? I just got 2 million more."

Q: IT - and software such as years - is at once the result of and the instrument of eco change and the social change it causes. What ability does the maker of poliware he A: I look at it differently. In the past, IT's been used mostly for accounting - and

IT could be seen as the big empowering tool. But most of the

world still doesn't have it.

> CHARLES &. WANG. COMPUTED ASSOCIATES

today, most of IT is still used for ac counting - but we are changing that.

The telephone changed so much of how we live, yet today, half the world still doesn't have access to telephones. What has it changed for them? IT could be seen as the big empowering tool. But most of the world still doesn't have it The Internet is bigger. It's changing the way we do business, changing the way we communicate, changing the way we

relate. It's making social changes. But all of IT is only a tool. It's our responsibility that we never forget that, that we don't start to drive our children to think that the virtual world is the only world or that it's more exciting than the real world.

Q: Where do the best IT initiatives come from: A: Where it works best is when busin

and IT work together. Where it fails miserably is when they don't If [the initiative] comes from the business side, then there's often no integration with the rest of the busin

process, because the IT side still holds all the back-office inform If it's only driven by IT, business people will never accept it. [Develop ment won't be] fast enough. Because IT people will always tend to rebuild infrastructure. That's their business. The bigger the company, the more people

they have rebuilding it. If you or I want to go to the airport, we go downstairs and get in a car and go to the airport. Ask a technical person how to get to the airport, and he will tell you how to build a car. They take a transportation problem and turn it into a manufacturing problem. The largest companies in the world shouldn't be the ones to find the best IT builders. They should find the best IT drivers.



# Windows 2000 Migrates Into Web-Hosting Appliances

Microsoft Corp. has been quietly

preparing to snatch a piece of the fastgrowing server appliance pie, a market that has become Linux's steady diet. IBM and Dell Computer Corp. have announced Web-hosting appliances that use a modified version of Windows 2000. They are single-function

servers that can be installed in minutes rather than bours. Last month, Microsoft introduced

Windows for Express Networks, an onerating system for server appliances based on Windows NT Embedded 40. But the Dell and IBM units run a special version of Windows 2000. According to Ryan Waitt, Microsoft's lead program manager for server appliances, the enmakes it better-suited as a Web server. The operating system has been tailored to the hardware for faster performance, Microsoft claimed. The license won't allow buyers to run applications

such as SOL Server Some users doubt whether Windows is a good choice for a server appliance. "It's going to be a lot less efficient than Linux or OpenBSD," because they are inherently more modular, said Fred Leakeas, information systems opera-

tions manager at Intermountain Gas Co. in Boise, Idaho. But Jim Gargan, director of strategy and product marketing for Netfinity servers at IBM, said Internet service providers and application service cause they already use NT to run Windows-based hosted applications. Running Windows 2000 on an appli-

ance is more expensive than running Linux. For instance, the top-of-the-line Dell PowerApp.web server model with a 700-MHz Pentium III processor costs \$5,298 when running Red Hat Linux 6.2 and Apache. The same model running Windows 2000 coses \$5,698.

# CA Integration of Sterling Delayed

Computer Associates International Inc. earlier this month said it has delayed integrating newly acquired Sterling Software Inc. into CA products because the deal was finalized too close to the start of the annual CA-World 2000 user conference, held April 9 through 14.

And in an unrelated developm tegration of Dallas-based Sterling's services staff into Islandia, N.Y.-based CA's newly reorganized field operations divisions was put off two or three weeks, ac-

cording to CA officials. "Issues on the technical side are fairly straightforward," said Ron Exler, an ana-

Westport, Conn. "The real challenge will be in retaining the people. They wouldn't have trouble finding other jobs if they're not happy with how things go." CA President and Chief Operating Officer Sanjay Kumar last month said the company planned to "get to CA-

World with the integration done and the [applications] rockin' and rollin'." But the U.S. Department of Justice approval on the deal came less than two weeks before the conference

Integrating the tools will take time Exler said. Where there is overlap, "CA will pull the best product features into the primary offering whether that's a CA product or a Sterling product," he said. Plans for many Sterling products were

posted at www.cq.com/sterling/roadmaps (see chart below). But plans were unavailable for the Sterling VMS product family, which includes backup, tape, monitoring, security, accounting and scheduling tools - all of which have lyst at Robert Frances Group Inc. in equivalent CA products.

#### **Fate of Sterling Software Tools**

# **Enduring Web Site** Tricks, VPN Phobia

Week 7: Looking for a batch file to date-stamp firewall logs; still cursing at kludgy vendor Web sites

ZING ORGANIZED is highly overrated, but it's something that we must learn as security administrators and engi-My office still looks like a tsunami hit it, even though I have new furniture

and I try to organize my piles of paper and notepads. It bothers me niles of that my boss keeps only one magazine, one notebook, a computer mouse and a keyboard on his desk He pushes more paper than I do, so I'm trying to figure out how he keeps his office so clean. The lack of clean liness in my office is starting to bleed over onto my network drives. I'm gather ing so much that I don't know how to organize it all. Last week, we had some misfortune with our lab

firewall - a but file deleted all the executables in the %system%\fw\bin directory. I rebuilt the firewall and found time to work on the .but file, I need something in Windows NT to date-stamp the logs to process them daily. If you know how to set an environment to date-stamp a file or how to name the file with the date it's run, e-mail me at

So far I have switched the logs and xported them in comma-delimited format in Microsoft Corp.'s Access to look for backs or unauthorized usage. Then I stopped the firewall daemon deleted the old log in the fw\logs directory and restarted the daemon. That clears the log buffer. FW-I will automat-

ically create new logs. I set the AT Scheduler in the Windows NT Resource Kit to run this job every night at midnight. After the firewall daemon starts, another but file is run to send the exported logs to my internal server via file transfer protocol (FTP) so I can review the logs.

Tuesday was pretty horing. I tried to ead Windows 98 on an old 760ED IBM ThinkPad to begin testing the virtual private network (VPN).

It looks like I'm going to be asked to implement a VPN soon. I'm having a hard time understanding this. The challenge is that you have to authenticate your session. Then you have to decide if you want to encrypt it, then you have to decide if you want to encrypt the authentication and then

highly encrypt the session Note to self: Quickly learn quantum mathematics, calculus and any other difficult math so I can get this all straight I went to Check Point

Software Technologies Ltd.'s Web site via FTP to get the SecuRemote Client niece At Check Point's site.

ent SecuRemote clients to Manager's download and no documentation. Shame on you Check Point, You should always tell people what some have und what their need to download. Now I have to e-mail my vendor and wait for a reply and

> authorized training center just to see who will answer first. While I am waiting, I plow through the demo book of the FW-1 class I just took. They had some labs of how to set up the SecuRemote. I went through the worksheet, generated my keys. configured my user account and created two rules in the firewall, one for authentication and the other for the en-

cryption/VPN tunnel. Later, I finally got an answer about which one to download, so I grabbed in and started the laptop. After installing the client. I connected to a syneric dialup Internet service provider. Then I launched SecuRemote, typed in the name of the firewall and hit Get. It grabbed the correct IP address of our firewall - so far so good. Then I hit the connect button. After a minute or so

of watching the RX/TX lights, a window popped up to say the host didn't have the proper license for the VPN. However, I knew we had the VPN-DES+Strong version of FW-1; we had just renewed our license and the come said it was licensed for SecuRemote.

call with Entrust Technologies Inc. in Plano, Texas. The company provides software to create Certificate Authority servers and encrypt e-mails, desktops, lapsops, whatever you want. It looks pretty neat, and the company said it integrates wonderfully with Windows 2000. Of course, you have to take what a salesman says with a grain of salt and then consult with either his tech support person or another person you trust. The other problem is that this stuff is deadly expensive - like \$30,000 to start just for the software. Let's not forcer that we will also need another server/workstation to run this software plus the yearly support and upgrades. We'll talk later about Entrust.

The best is yet to come: I was able to go to a demonstration of Nokia Corn's IP 440, a rack-mounted unit that combines high-performance IP routing with there are about 20 differa complete implementation of Check Point's FireWall-1 enterprise security suite. This is what I really want to buy next. It runs a very slimmed-down version of FreeBSD; I was told that 700KB was the total size of the FreeBSD operating system. The IP 440 can be configured with up to four four-port Ethernet cards and a Channel Service Unit/Data Service Unit if you want to e-mail the help line for Check Point's plug a T1 line or frame relay directly

> I got to configure it right out of the box. I plumed a serial cable into it, then connected the other end to a laptop and began a Telenet session. After input a username and possword. I assigned an IP address to the first Ethernet port. Then I connected a crossover cable from my laptop to the first port on the 440. I launched Internet Explorer 5.0 and went to the address I had assigned and found I can confusure the rest of the 440 through a browser. It even provides a back-up system and FTP server so that you can back up your configura-

tion and FTP it to another server.

So, if anything were to happen, I would simply reload the operating system and FTP over the backup, do a restore and he back in business Back in my office, I met with RSA Security Inc. about the SecureID authentication system for our network team. We should have stronger authentication than simple passwords, given that we hold the keys to the kingdom. More on that next week.

### THISWEEK'SGLOSSARY

Authentication: Confirming the iden-tity of a user requesting system access.

Check Point Secultomete: Check Point's VPN-1 Secultomete extends the corporate virtual private network to the

Certificate Authority: A package of data digitally signed by a trusted authori-ty, which binds a public key to an owner.

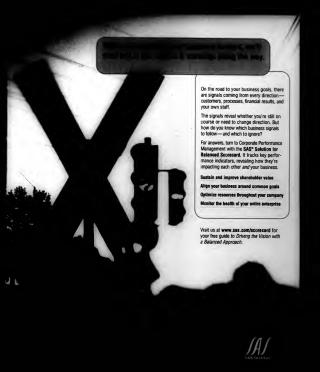
Data Encryption Standard (DES): Encryption technique that scrambles data into an unbreakable code for pub-

Channel Service Unit/Digital Service Unit (CSU/DSU): A per of com nunication devices that connect an innouse line to an externel digital circuit such as a Ti line or AT&T Corp.'s Date phone Digital Serve

LINKS

rente.checkpeant.com; Home po or Check Point Software Technolog ation about its firewall. VPM

This journal is written by a real security engineer, whose name and employer have been disguised for obvious reasons. It's posted weekly at www.computer world.com and at www.sans.ore to help you and our security manager — let's call him Pat - better splee security pro lems. Contact Put with comments or advice at pat\_rabbinski@hushmail.co using "Pat's Journal" in the subject line



# Web Content Management

MAGINE A LIBRARY WITHout the Dewey decimal system, and you'll have a pretty good idea of the age that is a large Web site. Content-management systems can tame that chaos by cataloging Web page data for quick and efficient tracking

editing and reformatting. HTML, the basic language of the Web, simply describes how text, graphics and other data should be presented on a Web screen. It doesn't describe the data itself and offers little help when a webmaster needs to locate and modify particular documents. HTML by itself is static; once the page is posted to the Web, it must be modified off-line and reposted in order

#### for any changes to take place. Power to the People

But the real power of the Web is its ability to move new information to the customer in near-real time and to cusze that information to suit individuals. That customization, known in the Web world as individualization or personalization, is virtually impossible with static HTML pages, especially with the ongoing shortage of trained Web technicians. It's hard enough to create every Web page once, let alone regenerate that same page every time a change is eded. You'd need an army of Web page producers to create the custom pages of, say, Amazon.com Inc., which presents data based on customer preferes and past buying.

Dynamically generated Web pages, however, give Web site managers the ability to create a Web page once and then pour tion into the page many times. Dynamic Web page generation lets Web tech create an overall template once. with fields for customer-specific information. Then servers can pour specific data into the temdate to create individualized ages on demand.

Content management ma shals information into labeled buckets of data that can be used again ("repurposed") or DEFINITION

Web content-management systems label and track information that's placed on a Web site so that it can be easily located, modified and reused. These systems are a critical component in personalizing Web pages for site visitors.

quickly updated to reflect information without needing huan attention. At its simplest. Web content management resembles a word processor's mail-merge function that can mass-mail thousands of form letters, each containing customer-specific data

The theory behind most tent-management applications is simple: You build a set of Web page templates, hook them up to a content server, add a back-end database of rmation and attach the whole thing to a Web Server. The content server automatically pulls information from the database, wrestles it into appropriate formats and stuffs

generating new and updated ) pages automatically. Employces with little or no Web training can undate content directly without ever touching a Web page. They simply enter information into database forms.

Dynamically generated Web sites are more likely to be upto-date and consistent in oresentation. Design changes can propagate rapidly and automatically throughout an entire site. And most content-manag meot systems include a workflow system that routes data satically from creator to editor to approver. They can often lock unauthorized users out of the creation and edit cycle and provide an audit trail for the correct data into templates. error tracking and version con-

trol that allows users to re to a previous version of the site. Most content-management systems support tagging structures that allow content reuse without manual reformatti XML, the best known, uses an HTML-like structure to describe the data on a page. Content-management systems also

generally employ scripting lan-guages such as Tool Command Language and JavaScript. In practice, conment can be difficult and expensive. Developing an effective content-management system for a large Web site takes a great deal of expert customization, especially in building scripts to handle data flow and

in constructing effective tem-

plates. Each new type of Web page requires new templates and workflow scripting, which can block innovation.

Large organizations with hundreds of thousands of Web pages often have multiple Web ites, each with different needs. data, formats and locations. Preexisting Web sites must convert thousands of pages to the new

content-management system. The problem grows even worse when organizations exchange data destined for Web sites. XMI, needs additional data descriptions, called tags or document type definitions (DTD), to adequately define the content of most documents. DTDs tend to be subject-specific and aren't easily passed between organizations.

#### ICF is Coni

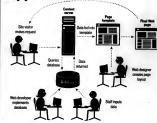
Many of the standards built around XML are still in flux. However, the Information and Content Exchange (ICE) proto-col is specifically designed to alleviate many content-manage ment and data-exchange prob lems. (To learn more about ICE, go to www.w3.org/TR/1998/ NOTE-ice-19981026.)

First recognized by the World Wide Web Consortium in 1998, ICE describes how managed content should be passed between Web sites. It provides a common vocabury of terms and methods for exchanging data using XML. It will be especially useful in cre-ating syndicated content — innation leased or sold to multiple Web sites - with a min

um of translation hassles. The first version of the star dard was proposed by leading ers, including Microsoft Corp. Sun Microsystems Inc., San Jose-based Adobe Systems Inc. and Austin, Texas-based Viette Corp. It applies specific formatting rules to virtually any kind of data that can be presented on a Web site, even down to mundane items such as date and time.

Morgan is a freelance writer who specializes in high-technol

#### Managing Web Content



# THE DATA IN THIS PIGTURE?

IT'S EASY, THERE ARE ALMOST 200 TERABYTES OF DATA ON THE ISM MASSTARD VISTOAL TARE SERVER, AND LINE MASIC, YOU CAN BRIDGE THE DATA TO A SECOND SYSTEM IN A REMOTE LOCATION. MITTH ITS BUILT-IN INTELLISENCE, THE ISM MASSTAR VIRTUAL TARE SERVER FROMDES LOSICAL VALUES STACKING FOR NEAR - 100% TAPE CARTRIDGE UTILIZATION — RESULTING IN REDUCED TAPE OPERATION COSTS AND MORE TAPE DATA UNDER ANTOMATED CONTROL.

LEARN MORE TAPE DATA UNDER ANTOMATED CONTROL.

VIRTUAL TAPE SERVER AT ibm. COM /STORAGE/MAGIC/VTS



18M business storage servers. Technology Innovation Magic In this corner, a Palm fanatic. I convert. Two editors, two hand better machine? By Mathew So

# PDAsat

At least the Palm isn't built by Microsoft. Think about this: The Palm has been the most successful handheld for four years running. Clearly, its design strikes an intuitive chord with users.

INION ENTOR Mathew Schwartz is a Palm fastic who weren by his new monofastic who weren by his new monostreet price of 2519. Smit reviews either 
P.C., much prefers his brands 55 (from like-price) 
Rausell Exy, a reconst convert to the Pocket 
P.C., much prefers his brands 455 (from like-price) 
in Windows (Z. 30 operating system from Microsolt 
in Windows (Z. 30 operating system from Microsolt 
Opp. Computerwood alared these two for a calm, 
halanced appealed of their handheld companions. 
In a second property of the property of the calm 
in a second property of the property of the calm 
in a second property of the property of the calm 
in a second property of the property of the calm 
in a second property of the property of the calm 
in a second property of the property of the calm 
in a second property of the property of the calm 
in a second property of the property of the calm 
in a second property of t

#### BACKGROUND

Soltwartz: First, some ground rules, Russ. If I buy a gadget, I have two guidelines: Will I carry it? Will really use if When I first checked out handhelds by talking to friends and searching online, I picked the Palm. After a year. that device still satisfies my two criteria, and it's great at keeping me organized.

I've looked at the new Yocker PC devices, and they just don't meet up requirements. They two to big, and their operating systems are a pain. I doo't care how much memory they have or a boo bepring MPS, and their operating systems are a pain. I doo't care how much memory they have or a boo bepring MPS, and they make they have been to be provided to the proof in the pr

Kay: Will I carry it, and will I really use it? Those ar great questions, Mat, but my answers are different. I also carried a Palm for more than a year, and it was no more useful to me than the \$30 organizer it replaced. In fact, it was harder to use in low light. I

stopped carrying the Palm.

#### Schwartz: Two words, Russ: battery life, My Palm

Hise goes for more than six weeks on two AAA bat-

COMMON TO THE OWNER.

n the far corner, a recent Pocket PC lhelds, one question: Which is the hwartz and Russell Kay

PO Paces

teries. No recharging, no fuss. Even with the color Palm IIIc, which has built-in rechargeables, I got more bang for my buck. The Pocket PC only lasts a matter of hours, especially if you're playing MPAs. Kayr But what good is long battery life if you cardread the damn thing? And comparing monochrome with color battery life doesn't wash; you have to compare color vs. color.

#### SOUNDING OFF

Schwartz: Batteries aide: the Pecket PC has a fatal Microsoft flaw: It's bloated! The Plam does a few things very elegantly. The Pecket PC tries to be everything — and you pry for that functionality even if you don't use it. For me, the Pecket PC's dictation fasture is worthless. I never transcribe voice notes. Kep? I don't record interviews on my Pecket PC either, but it's great for capturing directions or quick notes to myself.

#### PALM PLAYS WELL WITH OTHERS Solwartz: Out of the box, I had my Palm set up with

free synchronization links to my favorite e-mail program. Eudora, and to the Palm desktop program that lets me type appointments and memos into my PC and sync them with my Palm. Guess what? This isn't the world according to

Guess what? This isn't the world according to Gates. L'can't stand Outlook, but it's the only organize the Pocket PC integrates with out of the box. May. Sure — out of the box. The not crary about Outlook, but I don't like Eudora either. Just like the Palmere's bots of third-party software for the Pocket PC — and it's from the same companies that write comercivity applications for the Pocket or C. — and the production of the Pocket PC in the party of the Pocket PC in the party of the Pocket PC in the production of the Pocket PC in the party of the production of the Pocket PC in the party of the production of the Pocket PC in the party of the production of the Pocket PC in the party of the production of the Pocket PC in the party of the production of the Pocket PC in the party of the production of the Pocket PC in the party of the production of the Pocket PC in the party of the production of the Pocket PC in the party of the production of the party of th

#### HARD-CORE FANS

Schwartz: At least the Palm isn't built by Microsoft. Think about this: The Palm has been the most successful handheld for four years. Clearly, its design strikes an intuitive chord with users. Yet after suc-Continued on page 76 Your argument is specious, Mat. Apple Computer still has less than 10% of the desktop market, so by your reasoning, Microsoft Windows is clearly doing something right.

# PDAs at 30 Paces

crosoft still has less than 10% of the handheld market. Palm is doing something right.

Kay: Your argument is specious, Mat. Apple Computer still has less than 10% of the desktop market, so by your reasoning, Microsoft Windows is clearly doing something right on the deskrop, something that "strikes an intuitive chord with users."

warte: And there's the Palm's cultlike following Kay: Geez, Mat, first you complain

about Microsoft, then you brand the Palm as a cult object. Schwartz: Yeah, but what about when you want to add a particular function to your Palm? Odds are good that ne else has already built a solu tion, one you can download. And thousands of other users are out there try-

ing the same program. Kay: This sounds an awful lot like the

warte: Power to the people, Russ. Heaven forbid that Microsoft should let users reshape an application for their own ends. I can show you a pas sionate Palm user base that creates the programs it needs. Consider Aportis Technologies Corp.'s BrainForest, a third-party to-do and list program that puts Microsoft Word's outli ning function to shame. The Palm gives you options. Competition creates excell-Kay: It certainly does - excellence

like my HP Jornada Pocket PCI hwartz: Hardly! The collective. grassroots nature of Palm devotees will continue to make the Palm evolve and surpass Windows CE devices.

MPLE IS GOOD. . . .

artz: The part reveals the whole, Russ. Take the screen. When Palm started, the designers must have said, The screen is small, so we have to keep the interface clean and simple." And it is. Give me a task to add or a reference to change, and it takes me 10 seconds, tops. Each of the Palm's four main fu octions has a correspond

ing hardware button. But Microsoft, with each successive version of Windows CE, says, "Let's take our great Windows interface and repackage it for handhelds!" Excuse me - reality check! The Windows inter face has never been great, and in Windows CE it has run amok. Who knows what's where? The Pocket PC control panels are so overloaded that you can hardly find anything intuitively. It es a lot of screwing around just to make basic adjustments or launch an

application. And the voice recorder and MP3 playback software aren't inte grated with the other applications. Kay: Mat. you whippersnapper, your ment reminds me of the Mac vs. PC religious disputes. Face it: Both interfaces have problems, and the Palm is intuitive only because you're used to it. When I carried a Palm, I often

couldn't remember how to get to something. You may hate the Windows interface, but I find it pretty oseful, and in the current Pocket PC Microsoft has interpreted it really well for the small screen. OK, the company needed three tries to get it right. So what? General Motors has spent seven decades trying to build a decent car

... BUT CAPABILITY AND INTEGRATION ARE BETTER Kay: The Pocket PC hardware and more useful and usable than the Palm ever was. The I6MB of RAM, plus the add-in compact flash (CF) slot, lets me carry a lot of information. It's a great travel companion.

For a recent trip, I downloaded a detailed man into Microsoft's Pocker Streets, complete with restaurant and hotel information and pointers to where I was going. The Media Player software let me listen to tunes via headphones

And the electronic-book software -Microsoft Reader with its ClearType foot rendering - made it easy and pleasant to read a book on-screen during a long evening bus ride Schwartz: Clear Type makes for nice reading, but it's Microsoft all over again: So far, it only works with the electronic books it creates. How useless. Is the company scared someo will steal the application if it's built into its insecure operating system Kay: Sure. ClearType belongs in the operating system but this is its first release. And I think it will be in the oper ating system before long. Oh yes, Reador works with any electronic book creWHO NEEDS WHAT?

ta: I've tried the new color Palm, the \$450 IIIc. It's a lot easier to read than the Palm III that I love. But you know what? I don't need it. Kay: Well, I do need it. I can't tell you the number of times I've strained to read the Palm in middling light. Its backlight is useless except in total darkness. Mar. wait 20 wears until you're wearing bifocals, then see how eful the Palm is. I don't need color. but I do need a decent screen imore And no monochrome handheid -Palm or Windows CE - has it. Schwartz: Addresses, checklists as phone numbers - that's me I look at my Palm for bursts of 10 or 20 seconds. Same for local movie listings, which I capture using the free program Avant-Go. Same for recent e-mail. I'm not reading the latest Stephen King novel on my Palm, I've got enough com er-related evestrain, thank you. To edit

a document, I print it out. To type in text. I use the add-on keyboard POWER WHEN YOU NEED IT Kay: I wouldn't use either a Pocket PC

or a Palm for capturing or editing text if I had any other choice. But the Pocket PC's power and convenience can, on occasion, be really beloful. hwarte: By that logic, Russ, I should spend lots of extra money to make sure my new TV is HDTV-ready. Palm gives you options, but Microsoft has abo doned the less-expensive end of the market and cares only about corpora users. I guess it gave up on individuals. Kay: Yes, Microsoft has opted to focus

on the high-end personal digital assistant. That's a marketing decision. In fact, it's a good example of not trying to be all things to all people Schwartz: But their worldview is all wrong! Need to edit a document? Use a

laptop or just print it out Kny: Try to fit a laptop or a printout into your shirt pocket! Sohwartz: Well, if you need an address or movie time, you can use a

Palm. For \$250, I get 8MB of memory. plus the 2MB that stores the core anplications. That's plenty of power for me to do a lot of different things. Kay: Yeah, and for \$100 I can get any ber of dedicated orga will store just as much and work as

arta: Hardly! You're selling the Palm short. If you want audio, buy a Palm and an MP3 player. You'd save money to boot.

Kay: It all depends on what you're willing to give up. To me, the Pocket PC's strength isn't in being a better or ganizer; if that's all you want, you don't even need a Palm. But the Pocket PC will spark some good handheld mobile applications. You stick to your Palm nizer, Mat. As for me. I want to do more, and with the Pocket PC. Loan &

software are just plain better, they're AT A GLANCE



Palm Illxe Polm Inc. www.palm.com

Max Internal memory: 8 MB

Price: \$249 Operating System: PalmCS 3.5

Displey resolution: 160 by 160 Display colors: 16 gray-scale

ccessory add-ons: Va Hotsync port Satteries: Two AAA batteries

Battery life: Six weeks or more Sound recording: No

Music playback: No

ideo playback: No Word processing: Third-party nathures Spreadsheet: Third-party softwere

vare included: AvantGo an expense program, e-mail and carnics vere conduits allow the Pain to synchronge with other programs

ated to the new standards.

Jornada 545 www.hn.com

Max internal memory: 16 MS Price: \$499

Operating System: Windows CE 3.0 Display resolution: 320 by 260 Display colors: 4,000 to 65,000 colors

Accessory add-ons: Via the CF slot Batteries: Built-in rechargeable battery

Bettery Me; Eight hours or more Sound recording: Yes

Music playback: Yes lideo niavhack: Yes

> Word processing: Standard Spreadsheet: Standard

Stware included: Pocket Word. Pocket Excel, Internet Explorer, Aventico. Pocket Streets, Pocket Outlook, Outlook 2000. Microsoft Reader, Microsoft M Player, games, Transcribe handwriting

Cyberslacker

Auto of the Future Prius, Toyota Hybrid System

Tuned-in to the A Experience AudioBase.com Let There Be Art

IncredibleArt.com, Inc. R2B Data Mining Solutions Microsoft Corporation

User-Friendly Online Shopping Hub Shoppath.com

The Ultimate Online Sporting Goods Store dsport.com, Dick's Sporting Goods

Dick's Sporting Goods
The Future of Research
Beilt from the Past
Gale Group, Inc.

The Last Tool You'll Ever Need Buildscape/RO.com Buildscape.com

Internet Source for I Choice and Savings ChooseEnergy.com

Fast Lane to Treffic, Transportation, and Traveler Information TrafficStation, Inc.

Real-Time Tech Support expericity.com The Sound That's All About You

The Sound That's All About You musicmusicmusic, Inc. RadioMol.com One-Step Party Planning

Party411.com, 411Unlamited, LLC. Multi-Culturel Virtual Community dom Age Materia ekstplace opierMarket.com

Latin American Virti Marketplace

Marketplace ZonaFinanciera.com Protecting Your

> AuthentiDate.com, Bitwise Designs, Inc.

round the Globe scortline.com,

Fiola International, LLC.

World of Chocolate Online
Godiva Chocolater, Inc.

On-Line Business Shopping Solution OLB.com, Inc.

Do you have a story? Email: talk@tvi.net

Hosted by Mark Harnill

\*.com" is brought to you in part by C

4.7

www.computerworld.com

# TECHNOLOGYEMERGING COMPANIES

# Secret Shoppers Offer Personal Touch Online

Start-up BuverTouch uses real live

shoppers to evaluate e-commerce sites

ECRET SHOPPERS are commonly used by bricks-and-mortar retail businesses, People go into a store or restaurant to buy some items and make notes on such points as the store's appearance, the clerks' service, the merchandise displays or the bathrooms' cleanliness. Their opinions are bundled into a report that reveals how a potential customer would view the business, and it gives the management an idea of what works and what areas could use improvement

Seattle-based BuyerTouch Inc. has adapted that idea for e-commerce stores, offering an assessment of a site from a visitor's perspective, including site usability, navigation and onality. The idea is to find out what aspects of the shopping experience at a Web site attract and repel potential

The secret-shopper touch is what differentiates the service from purely software-driven site-analysis tools, says Buyer-Touch President and CEO Mike Bezona, While analysis software can tell you which ages were visited and for how ing, his company offers customers insights into why people chose the actions they did We're not into the clickstream," he says, "We are the buman aspect."

Delivering the Demographics BuyerTouch is trying to solve a tough problem, says

Steven Telleen, managing director of the Web Site Scorecard Service at high-tech consulting firm Giga Information

Telleen, in Santa Clara, Calif., says technical performance is fairly straightforward to measure, while customer acceptance isn't. What's going to make or break BuyerTouch, he says, is its ability to deliver testers who match the demo-

graphics sought by the Web site operators

BuyerTouch has tens of thousands of shoppers, says Bezona. They all have to supply a demographic profile of themselves, he says, and they're screened through a third party that validates their profiles using existing databases of personal information. Buyer Touch gives them particination incentives in the form

of cash or gift certificates.

of analysts with backgrounds in market research who write mary reports oo the shopners' responses and make rec-DEDVERSE

At Seattle-based Shopnowcom Inc., Val Sanford, seneral manager at the online business portal's B2Bnow division. has been using BuyerTouch since January to give its customers independent feedback on the user interface experience. B2Bnow will build a highend custom Web site, test its usability with BuyerTouch and then use the information to

BUYERTOUCH CED MIKE BEZONA: "We're not into the

clickstream. We are the human as

#### BuverTouch Inc. Location: 725 North State St.

attle Wesh 98775 Telephone: (360) 733-5400

Web: www.buyertouch.com

The technology: Web site usability and functionality testing Why it's worth watching: The secret shapper" testing method

elicits opinions and experiences of ople with the sale's target custorner profile. pany officers: \* Mike Bezona, president, CEO

· Rusty Swayme, chief technology

of research and development

Red flags for IT: Touch shoppers match the profile of your ideal customer? Can Buyer Touch complete its research before a site changes enough to render a report obsolete? . Will it survive the mevitable March 1999: Company founded shakeout in this emerging market?

Sent 1999 Feet

areduct introduced

mber of emple

profitability next year

Mumber of employees: It increasing at 50% per year

Profitability date: Acceptance

Burn money: Private sources

Benchmark and Competitive

Customer: Shoonow.com inc.

Will the demographics of Buyer

Services: BrandTrac. Layety Trac

select testers from a particular demographic segment sold Sanford on the service. Different target markets of online shoppers have different Web site requirements, she explains and BuyerTouch understands that. "They're saying that there are different experiences for different souls," she says.

Having the opportunity to

fine-tune the site.

#### Choosing Targets

In addition to targeting site builders such as Shopnow.com as customers, BuyerTouch is looking to target large e-con merce sites, says Bezona. It also provides general reports that summarize aggregate data as a kind of best-practices curriculum for smaller organitions that can't afford an indi vidualized test, he adds.

BuyerTouch's next move is to qualify its existing database of shoppers as corporate buyers and to find new shoppers who meet that profile, in order to build a service for business to-business sites, according to Bezona.

The company is also working on a way to marry clickstream data with a shopper's reported experience. There's a strong desire to please among testers. explains Bezona, and the clickstream data will help pinpoint any discrepancies between the

actions of shoppers and their reported experiences For now, says Telleen, this committee . type of usability research and recommendation service is so new that

emerging ket. Buyerloom.
Companies grace period at the moment, be stry, but it will soon face a shaker-way survival will depend on whether it has correctly picked the kinds of testing services - brand preference, usability and competitive analysis - that site

managers want, he says, In addition, BuyerTouch faces the potential pitfall presented by the ever-changing nature of the Web. With sites changing frequently, it needs to compile reports speedily in order to provide value; if the analysis cycle stretches out, the interface and navigation pre-

sented to testers may be buried on last week's backup tages. Johnson is a Computerworld contributor in Seattle.

the buzz

#### It's Qualitative. **Not Quantitative** Reservance CEO Mike Reconstanting

and focus on the user expension. This secret-shopper methodology is one type of market research; others include quan-Statue measurements of popularity such as customer surveys asieng for ratings.

#### BizRate Inc. Los Angeles www.bizrate.com

This is a rating service for e-commerce sites. Boffate asks people who have out a survey reting facets of their exper ences - ease of ordenno and quality of the delivery service, for example. The company collects demographic inform dividual transactions. Palso offers some text of shoppers' comments

#### Media Metrix Inc.

This company provides information about who's surfing what, when and for howlong. By linking audience usage patterns with demographic data col lected we its Q-Metro: service, Media Metrix can come close to giving a complete visitor profile. However, it doesn't offer directed, qualitative information like that provided by Buver Youch.

#### PC Data Online Inc.

Roston Va www.pcdataonline.com Concerned mostly with site traffic PC Data Online uses statistical sampling techniques among 120,000 participants to project measurements such as a site's unique visitors and total hours of viewing. The company also does custom surveys and is able to segment its detabase in a number of ways; for example, it can target groups based on their

#### purchasing and travel habits. Vividence Corp. San Mateo, Calif. www.vividence.com

Focusing on the user experience, Viv Touch, It uses the same business mode of prequalified testers who are selected for particular projects, based on their de mographic profiles. Testers have to use dombrowser that tracks their click stroams as they perform a set of tasks

For more information on advertising call (800) 343-6474 Fat 6000

# Problem is, your timing's off, Sweetie.

#### With synchronization every second counts.

If your company is considering e-commerce, e-procurement or 24/7 status, network server synchronization is essential. Turn to Datum TymServe, a single, unbiased time reference for accurate global synchronization. Without it, up may Find your time has run out.

- Plug and play. Rack-mountable units install while your server is running unlike others.
- Redundant sources. Use Global Positioning System, Inter-Range Instrumentation Group, time code or dial-up for time sources.
- Low maintenance. Unsurpassed reliability leaves you free to focus on other issues.
- Secure source. Network Time Protocol traffic stays inside the firewall unlike internet time sources.

> www.datum.com/tscw2 >888 551-4022



call (800) 343-6474 Ext. 8000



# WE BUY USED COMPUTER EQUIPMENT



13900 N, Harvey Ave. Edmond, OK 73013-2431

ST • FAIR • FRIENDLY • Since 198:

T RECRUITER/LIASON

Senior IT Recruiter IIS Citizen moving to India. Offices in Hew York & Bombay, Available to be your pointman in recruitment of programmers from India. Contact Bob @ 1-718-460-8364 e-mail

VRNDA555@aol.com

# Cuber-U.S. Inc

Providers of custom software development, system integration analysis and Y2K compliance for the PC, mid-range and large scale systems markets

Four reasons to choose Cyber-US for your custom software development and programming needs:

 Expertise in a wide range of programming languages, operation systems and platforms

Expenence in a variety of industry segments and application fields such as transportation, banking, real estate, communications, geol-ogy, geographic information systems, and decision support

- High quality consulting services - Very competitive rates

Call today for your FREE consultation. We will be happy to respond with our suggestions on how we might help your company with its information Technology and programming needs.

Cyber-U.S., Inc. 703-299-0804 www.cyber-us.com





searching for them.

## \maxingh fficient"

We know how valuable your time is. That's why we've made it easier than ever to keep up to speed on the latest and greatest IT offerings.

Computerworld eSource is the industry's first email resource for IT product and service information. Each mooth, special offers from hardware, software, training and networking vendors are compiled in one place and seot directly to you. So you don't have to waste time

Not currently receiving Computerworld eSource? Register at http://www.computerworld.com/esource/re-

COMPUTERWORLD eSource

# IDC's StorageVision 2000

Where storage and business intelligence meet.



The acceleration of information velocity?

Huge

The value of information?

√ Huge

The strategic importance of storage?

Huge

#### Presenters include:

Steve Lucza, CEO, Seagote Joe Tucci, President & COO, EMC Mark Leslie, CEO, VERITAS Software Kevin Reinis, VP & GM, Dell Computer Peter Bell, CEO, StorogeNetworks

#### For more information:

Via Phone: 1-800-343-4952, ext. 4660

Via Email: twhidden@idc.cam Via Web: http://www.idc.com/events/svis/













Dic dalarm scorotin, relative type of the proper date and insight and installed and insight and installed and insight and installed and insight and installed and insight and

# Supply-Chain Management, Served Up Hot

ROM ANCHOVIES and

olives to boxes and ovens, Domino's Pizza Inc. has its work cut out for it, delivering pies from 4 500 stores serviced by 18 regional distribution centers nationwide

Tim Monteith, CIO and supply-chain coordinator at Ann Arbor, Mich-based Domino's Pizza, is overseeing a major overhaul in the company's information technology supplychain strategy. The effort involves, among other things, replacing legacy systems with Pleasanton, Calif.-based PeopleSoft Inc.'s enterprise re-

specifications. So far, two of the 18 distribution centers have been wired and the rest should be online by the beginning of next Jan Mooteith says be sees ERP, the catchall term for supply-chain issues, as a boon to his company and to any IT professional who has it in his skill see

#### THE CHALLENGE

Our first challenge is to coordinate movement in a closed world," says Monteith Although the Big Three automakers and large retailers such as Wal-Mart Stores Inc.

plier-to-end-customer cycle is articularly crucial in the food service business. "The majority of things we move are perishable," says Monteith. "They have a short shelf life, so we need to have these items visible and track m throughout the whole

pply chain."

source planning (ERP) system, customized to Domino's DOMINO'S \$10 Tim Monterth

THE GOAL

Domino's goal is to achieve systems integration. Previously, inventory, accounts receivables, forecasting, marketing have tended to be bellwethers and supplier ordering were one the ERP flock, the sunperformed independently of

each other. "Now we're working on consolidation of information on a visual basis," says Monteith. "We want the supply chain totally integrated with our busi-

We're automating things we used to be doing manually. "The technology has really

evolved over the last five years," he explains. "We're at the stage where we can affect our point-of-sale system, our distribution system, our supplier system, our data warehousing - pulling all these elements together."

The technology is still new, so there are potential glitches. These are early products in the life cycle of the software. Monteith says, "so you're going ness and accounting divisions. to have some surprises, no matter who the vendor is."

Such surprises can be extremely sticky because the system affects stores and distribution centers across the country. "You're using software that's not mature," says Mooteith. 'And [the ERP software is] all over [the companywide enterprise], unlike HR or payroll applications that are basically contained in the home office. where you have a lot more control over the environment."

#### AVOIDING PROBLEMS Monteith has tried to avoid

potential problems by anticipating trouble spots. "You need to look at the new system and the way your organization does things and meet in the middle," he says.

One of our biggest problems with integration was order entry, so we modified some of our procedures to accommodate the new system and with consultants, made some modifications to the People-Soft package," he explains,

MANAGING CHANGE Integration means that emplovees are communicating in ways they haven't communicated before. "A change of this nitude is a real cultural shift for our nser base," says Monteith

"Training support is very important," he adds. "A lot of our customizing came from listening to customer service ople, who told us things like. If I could press this button and do this, it would really speed things up for me."

ERP has been a boon to Monteith's career, Previously, be was CFO of a small software company that installed supply chain models for book distrib-

"We did custom work in publishing, (and) then we sold inventory control, warehousing (and) accounting," be says.

**OUTLOOK FOR ERP** "It's a hot area," says Monteith. "We have trouble finding qualified people. When we do they tend to get paid quite well. Especially if you've got a couple of years of Oracle and SAP under your belt and [have] worked on a product in the supply-chain arena, you'll go for a premium."

> Menagh is a freelance writer in Maple Corner, Vt.

and title: Tim Monto CIC and supply-chain coordinator ew: Domino's Pizza Inc. Arm Arter, Mich.

Nature of the work: Finding solutions to company syste ERP, developing an IT program

that can adapt to fit into current comprete culture

New skills isvelved: inte-greling a customized People-Soft ERP supply-chain syste oughout Domino's nati wide stores and distribution

How he got the job: Monte has a background in the dovel-cornent of customized and

Skills: Experience with Oracle Corp., Informix Corp. and SQL beans, as well as with data base design, data warehousing and object-oriented program-

ming; business knowle idae in inventory control, acco and marketing strong corn recation skills to help get the user base and management on board with ERP de

typically a minimum 10% to 15% salary premium for IT nets who have suo ply-chain experience.

Career path: Upper-level

Career advice: Monte suggests that those who are new to the field find a position that gets them in on the ground floor of a new metallation gives you the opportunity to see the business problems that are involved," he says. "You're not just maintaining code but learning about the way the

supply chain works, from the ground up." - Melenie Mercan

A do year recover.

We look gou're in demand for greating secole the year.

We look gou're in demand for greating the fact services and the second for the second for the second for the second for the country with offices at over the country and the second for t

Find out more about the revents of society with Apid Tall apply to provious in stry for defect offices, please as our relative is even plant or if you're interested in price to no opportunese about the tell or call 1400-70-2562 (but however you're interested in America November 1997) (199

The LEE Sections - Leave - Lea

Mee either meets melden in die either meet meets meet dar der meet meet dar de meet de meet dar de meet Résumés kill trees.



CRUEL

Introducing the most tergeted, confidential, Industry-specific career site on the Wab It ends the paper chase. Cruel World. Work Happily Ever After: www.cruelworld.com

MARK YOUR CALINDAR FOR THE 9TH ARRESTA

COMPSTERWOODS TRUMECAL INCOMPTING & RETRICTION COMPSESSION

For More Information will 1-800-600-9204 • Marriott's Oriendo World Couter • Oriendo, Fi • May 21-24, 200

Computerworld - April 24, 2000

netroth maintenance using VB, SQ, Server C++ & Astreact De-vertor & imperiment methodolo-ges to cerema ariganeer legacy systems. Develop communica-non software & weet-based chemisterier GUI/Intalabase sp-piculions & Actività componente

sications & ActiveX companies to support well-based applica-torie MS in Computer So., IT, or Impresency reg. MOK/yr iso white, 2 resumes to GA Dest. of white, 2 resumes to GA Dest. of

577 350ny: Must have M S de grae in Electrical Engineering with a concentration in Signa

Processing Will have Send copies of resume to Case 19800016 PO Box 98060

Booten MA 02314

any's a-commerce inflatives. An series in connection with the company's an commence industrial Amiss and applies solvenced southness from the systems steeryn de-prisent, and implementation propose indelval to resmall economic entranel systems. Assets users and other learn mumbers of the

careers.com

eign and development of tertimosis specifications used to develop states programs according to user requirements. Designs, develops of obdes system programs for the company a vitamist, aurounce, and frame! Respectives and analysis electing and new see-ceased scotto in the industry Develops that Graphical User treatment. Co Onvelops time chapters that transcers, our mean manager, sustainer, and technical organi-maticine user operations and demines areas of

in une representation de la company de la co vettper. As yet of the required expensions in the position ng offered at the related occupation the applicant must have had long others of in the respect to the control of the

area can income two (2) copies of resume and cover latter to leading File #C191387 (DWE-ALC PO Box 7972 Medison Wo-183767-7972 Reference File #C101387 since Emphase Problems to design, develop and inscrement authorized to the problems of the pro

COD. Informa, Clasce Fourin, MYS, Novel UNIX Windows, APT, Gryand Reports, C. Cov., COSOL

Hoteres Applications Windows St. Windows NT Votes C. ex. C. Con. Visual Basic, Possethyster TCPHP MTM, MFG. Meson: IMMOSO, 19M ESBOS MVII, BIS CLASS, CICS, 750 M COROL, JC, ASA60

Whether Directors Presidents is design, develop and emplanent soli-tion ordered to deservine basishing of design and fracts software to receive the deservine basishing of design and fracts software between these land fracts of solitions. Must have story any of expo-tence in the final of a description reflection and was as a special of in it field. Benchelors suggest, as large exposured in Computer was a second or the second of the second of the second of the southern to second or the second of the second of the second resources to second ordered and second or the second resources to second ordered and second ordered ordered or the second ordered ordere

Sentence: Stational ISM ESINGS, MAYIL MAS CLAND, CICS, TSO SAM CORDOL, JCL, ASSAGO.

single of Computer Operations Descript and John Steemes provides of the Section of Computer of Comput The control of the co

or the recent December of La-ter Felti Service Office careers.com

AN ANCHOR GAMING COMPAN A.C deegns, manufactures and manufacture character gaming machine and certific coming system hardware and software for government gaining programs and case in markets. Another specialists is true-free work.

BOFTMARE APPLICATIONS ENGINEERY Indution Operange: Inquires Bacherins in CS. Engineering or resolutives All levels 0.5

tane and other a competitive salary and a full centality package.

To apply its major assume salar must salary an direct or STE from a full

For additional information about other open positions was us on the meb all were artichorgaming com

ency Schware Engineer Pop twee feesbelly of design an curas. programming and documentation Work implyase, extensive travel and hisquest, extension Must have tree years! experience in job offered or as a mobiling and process incoding financine. MS 705. 5 Adilly in City. Financine. MS 705. 5 Adilly in City. Georgian Control (1957 and ten-ches devicements as demo-cration by Coursework in programming, coeristing serv-states of explanation, and con-trol (1957). Adoly at the 19 MS 705. 707. Adoly at the Tenda Wentforce Commission 195. Sease, Merchiter Commis-sion 1917. Trying Room GVT Audin. Name. 70701. J Ol 4731/107780. All their by An Count Cognitive Employer. towing fields. SAP Blean or Peo-pleSoft Missier's degree in one of several similar heigh. Comput. of soverprisonated heads. Comput-or Sp. Apps. Eng. Chem. Meth-or Physics or scientific or bus-ness mining held. Will accept

Senior Selbano Singineor Design and stworps COMMA Clipsof Request Stoker Product to solve the intercombinity proteom of COM COMMA first latent applications. Commissi the obert and server code Work with COMMA architecture

and design. Wholly responsible for project including supervision. Demonstrated ability

designing and developing informal DBA Demonstration

Ki chek III azw. II yan Male hame 5 ya. equ in 5 ye. Eup in refeted acception of Software EngineerComputer hoppement/helyth and 8.5 Some 50. Math. Eng. rel leshingain Some 2 repair heldingain Some 2 repair resulter Jill Drain 12000-100. 1°O. Box. 999. Concerd wellstook office.

NAVETE, MISSIPS, DEVOISE, NO. Opportunit and maintain

HTML Shell Kdt Workship CMVC Purily Interess and TCPOP under the LMK parties

on a LAN announcement Pagging M.S. degree in Conquer So-once Decimal Engineering or a

demonstrate about 10 person the video per culos games through academic course

PACIFICAL MOST INCOMPANY

sitios within the U.S. is required. Salary \$64.000 ner year 8 am in 5 pin. MrF Apply or person in the year of Capital December of the Capital mant of Labor, Job Online # QA, 6485498. 1535 Attanton Proof. Lawrence-tile. CIA 30042-5601

clients using C C++ Shell Kdb Workship Purely, Informs and

Societion degree with the years of progressive experience as somputer professional Salary 1100 DDD party 40 highes 1900-500 pm. Pleases submit resumes to James Lopez Rupides, 4400 Campbells Run Road Pleasangin PA 15005

Analyse, design and develop continential polleties applica-tions to 15 - to an 12 - to the time servicement. Disago and costs Microsoft frincious teach Outs and as VC++, VII, MITC Access and SSM. Design and Access and SSA. Design an impression behavior issued as in a company of the control of the contr

Analyze straight and develop commercial Software applica-tions for 50 states 20 cas Wi-times annothment. Design and code Microsoft Wirelesse assets (SUIs and application code using tests such as VC++, VI), MEC and SOI, Seagn and experience. technot describe support very selections such as MS Access. SQL server Demonstrated and by in achievant windows diver-cement within outside controls. graphics proving and multi transact printing and materials of coops and development of OLE servers and containers \$53,000yr 40 hres 5 a.m.

th Must reve this with 2 pr senence. Sond 2 recurred mexistrator 257 PO this code store, MA 02114 Software Engineer Positions in cereign develop and impairment software produced and impairment software systems to case-mine teasoning of design and design estimates were professional produced and texture resources assumed texture resources assumed texture resources assumed texture resources and texture res ing haits SAP Basin or Progra-Soft Bechelors degree, or lossing equivalent. In Computer Sor Agel. Eng., Chiesin. Main: Register is a lowerful or blummen related fear Sorem \$50 000 perry 60 hours. \$90.5 00 pm. Please autent or burner. In Jame Loper, Re-playin. 1400 Comptels: Ru-Roder Printango, Ri. 1505.

Johnson Engineer Volkson, No.
Johnson, southerd engineer to per-change, and had endergrowen
collineer Representation socials
experiment or C. of least 2 years
of assertions in the germa in-cluding or resided helios socials
experimentations, selecting
graphics virtual-based expectation
graphics virtual-based on committee
to controller. Selecting or committee
Comm

design, devides and implement feet of the control of the control

Print, Zresumes to GA Dags to Listor, aso Order # GA 6490277. 2543 N Oracli Hells Rd. Afams, GA 30029-3009 or nearest Dept of Labor Field Sant Office. ATAT is an Equal Opportunity Employer We restorate and on-courage cinversity in the work. Senior Schware Engineer Pos-tions to design, develop and en-planment software systems to de-terraine leastistify of design and Srects software lessing. on to religion, communication or communi

Hard Design Se Profession ogy Puriors instrument anneaus og Puriors instrument anneaus anneaus og Puriors instrument anneaus ann arra ment seaute (NE, OCC, COS), CVM occurs a femotive (oppine or any employment) feith of the common of the commo

thing investigate of program-ming testingues are computer systems for acceptant and so-profic applications. Master of Secrets in computer source or

electrical engineering and an excelled expensions to pile of ferror regards. Must be able and enting to trevel. One year's co-

personne migural using (1) ETI DAS RANGINE Developer Trush

UNIX/Whitows \$00,000 Qualified appropriate send re-numes to Wilson R. Passessoon

and EROAS MAGINE

Logics, Inc., is feeding for energy-level and experienced conditions to fill the following positions, open at all of our US leaning: • Software Engineers

discharge Development develop programs

. Systems Analysts Please Reveal year name or Horses Revealed Department of www.lugics.com

or Janus Crowley 1-800-762-2977 Utility in MRI Adjance sealing required Science Math or related Science Solet Seath or related Self 3 mers programming acquir-ence in Intergraph FFLASAGE Abdicasation Day Language Cri-& ORACLE or other relational

careers.com Where the hest

Software engineer in design, develop and east company pro-grams. We increase appears to a proposal for increase appears to the control of appears to the control of design, others and these systems to common the design, others and the control of the control of

FM 40 incurvines, anches example tand and hispate research Agely Ms May Par Course, Meleosperi May Par Course, Meleosperi Add Film Are, McCasagner FA 15120-2000, Jos No WESSERS

Betheve Beginner Colory Colory

lust point your mouse to the world's best IT careers site.

Brought to you by Computerworld, InfoWorld and Network World.

> Find out more Call your lTcareers Sales Representative



IT CAREERS

( careers

Careers com

Control of the Contro Exercise these required on an-systems to versus company and clear also within the U.S. Sway \$70.000 per year. 8.00 art is 9.00 pm M-F Sand re-turne to Rear-S. Kandhai Diver or of Consisting Services, As-cian Systems, Inc. 2500 April Versus Parkings, Apraides, GA 20004. Amil Job JS.

School Ergner to (easy, de-

areers com

Somple Institution of the Computation of the Comput

Careers

STOP In the Count Amount of the Count Amount o

ROBUS: DS2 informs. Grace FeePre MVS Noves WAXVMS Mindows, APT. Crystal Reports, C Co. COBOL Oracle MODINE: Designer 2000 Developer 2000, Chiese MODINE Oracle Applications SIDL Plus Print PL SQL, SQL Forme GUI and Internet Applications: Windows SS, Mindows MT, Visual C. Visual Core C. Core Visual Basic Foundfautor: YDP-IN HTML, MFD, CQL MTS. Mainhawar (BM3000) IBM \$3500, MYS INS CLI400 CICS TSQ VSAM CORDS, JO., AG400

NOTICE OF STREET, STRE Innie Robbits Designer 2000 Developer 2000 Clean ROBINS () de Applications SQL Plus Print PUSQL SQL Flores SQL Report

to two partials in present on the control of the co raicht à provide product as-ritte in the resplace of com-m technosis problems il state product functionalité, soci à deservine the progent borns in code six differen-forms to make enhance-ms à asce them in the ap-oriale section of the code to is Electricity or Comp Sci or Eng. & 2 yes cop in you led or 2 yes cop as Program-or Research Assistant Ved or 2 yes sep at Program-1 or Research Assistant 6 2 yes on must robbe start as the CCC+, MFC, roboss NF, LIPKK and TCDF his/wx, 9100m-5100m, MF, 21000/yr Send resume to see it 18091029, PO bo-68 Bosson, MA 00114

Technical Consultant Jub Doctor Organization PR, Dusse Analyse & uniquement economics site interval a service of the control of the contr

· ERMERIN Oracle States Various Carty, BAIN, SAF Franciscott, JCE

Preficient Guatrons Systems, r.c. is a first general of services from self-forces 600 clarge virg are compress course; for if per-lessorate in some all program-mer entires and software or programmer and supersons or seat or more of the following asset

- Software Engineering: TOPMP LINK, Socket on TOPIO LINEX, SOCIAL perior previous Entry and service level communiting positions are eventure. A Eacheter's / Massacr degree plus minister! professorial expensions may be recurred for made processoria. where it is because the control and contro

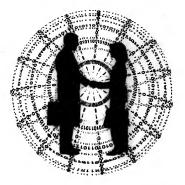
redenibles for dark processing requirements proceeding requirements proceeding requirements are proceeding requirements and redenibles requirements are requirements and redenibles requirements are requirements. Committee for particular requirements are redenible and or particular requirements are redenible and particular requirements are redenible and redenible an IRM

WE DO A BETTER IOB AT HELPING YOU GET ONE.

careers.com

# Connect with the best!

Network World Career Fair Las Vegas May 9-11



If you're in the market for a new career challenge, make some key connections during the Networld & Interop Conference in Las Vegas.

Top employers from across the US will join Network World Magazine in this three-day Job Fair. Look for our signs or make a note to join us in Room N110.

May 9 10AM - 6PM May 10 10AM - 6PM





THE WORLD'S BEST IT TOOL IS IN YOUR HANDS.

THE WORLD'S BEST IT TALENT IS AT OUR SITE.

of Computerworld, Infoworld and Network World?

Come on, recruit our readers and you'll recruit less often

n careers.com

( careers

into. CA-Provide tech solu Zieve project goals, conver of instruction into programmang code. Regalits in MIS. Compilion or related State & J co.mp.in devel & programming of apple using More Feous COBOL, Cold Fusion, Sun Ser 1904, 707 3rd St. W.Sacra

ments, CA 95605 INST, Inc. a Houston IT Co.

careers.com

better.

Tick Tock.

microsoft.com/jobs

crosoft

NEFD TO HIRE. areers START WITH US

Biltions and One III inframischure using LAMMANN lacchologies such as (NECAT! TOPINE IPX/SFX Appential Frame Role; IRON CSL/DSU and protectif analysis; metal CORRURE depty monter time and Neckeshoot bridges. Indies. LAN switches and other times. Land switches times. Lan



 $\lambda U r$ 



Please apply to job number of interest

Or you may call 1-800-737-6966 est, K7t, 24 hours./7 days per week BOE. M/F/D/N TM. ® Kellogg Company © 1999 Kellogg Co

attraction of incredible magnitude

Ac Sears Information Technology, we've developed movemen applications and architectures that have brought our recal business else the century enabling us to more effectively meet the needs of our customers. As one of the world's leading residers, we're a magnet for shose who want to take it to the next level

- Web Developers - Business Analysts - Database Administrators Quality Assurance IT Training Consultant If Training Consultan: C\*\*/UNIX Technology Consultan: C\*\*/UNIX Technology Consultan: CiteroServer & Horanes Technology Consultan: 50 (Server Servers Technology Ladder: Hiscognig Architecture Resource Planager; Lintes Micres Dominio Specialists.

Application Developers - COBOL DRD 333 Beverly Road, D4-178A follower Estates, SL 60179

The Good Life At A Great Price.

NEED TO HIRE. START WITH US.

aree: Careers.com Let your imagination run wild · Oracle DEA Develouer . Deto Architect

Sr Software Engineers for C-Euweee Applications Teacher makes Spelered for which the Committee of the Committee of the presence, and theretoe services returned in Section (SS Soft-pension in Marcella Child Child APP 201. and 502 Software The APP 201. and 502 Software The APP 201. and 502 Software The APP 201. and 502 Software of Software Software of Software Software in Committee of Software The APP 201. and 502 Software The APP 201. and 502 Software Software Software Software Software APP 201. and 502 Software APP 201. and 502 Software Softwar

Computer Systems Analyst
Mil Iras (Uplean) of hattern't to
support Web Apps. Company
and Stat ASCO Admir sales
Mill World & Domine RD, ISC.
Once Manuffector RD, ISC.
ISCR. PLISOL, Plus C. CoHTML & Jan. Pelicone a
Section's Day on Computer
Section RD, ISCR.
ISC

inferent schillanderer syndiate & create ingert syndiate & create ingert syndiates who will be a substantial syndiates and a s

Πcareers and Πcareers.com reach more than 2/3 of all US Π workers every week. If you need to hire top talent, start by hiring us. Call your Πcareers Sales Representative or Janis Crowley at 1-800-762-2977.

Compolerworld - InfoWorld - Network World - April 24, 2000

als, Script Buider, ersent, CTI, IVR. wersent, CTI, IVR. Al. Shelt Script, Perl



dice com

#### Software Engineers

All positions require a BS degree (or equivalent) in Computer Science or other relevant field, together with at least 4 to 7- years' relevant experience

nior Software Engineer (QuickPlace in XMI /SSI provingers to laws and Co. Principal Software Engineer (Notes Client Editor)

• HTML & Int'l char processing/bi-directional

Principal Software Engineer Retentis Products Designer/Surver Admin Visual Design, Product Mgt , let'l. Products

rject Manager (Donaino Web Engine) · Multiplatform, HTML, DHTML, Javascript we benefits and starting salaries from \$48.700 commensarate with the position's specific stitles, accompany this exciting high-tech int growth opportunity





Work all day on one of the nation's largest networks. Then go home or wherever. Sure, we have one of the country's largest privately owned computer networks and the #15 ranking on the Fortune 500 list. And of course, our salaries are highly competition But what makes working here so special are our family-friendly benefits packages. casy-going lifestyle, diverse workplace and welcoming communities. No wonder we were included in Computerworld's "100

Best Places to Work" Contact State Farm Human Resources

at jobopps.corpsouth@statefarm.com

for information about current positions Or visit our website at



Get there with State Far

Trusted by more hiring managers than any IT space in the world.



careermag.com

Cool Jobs, Hot Content.

Compolerworld - LefeWorld - McLwork World - April 24, 2000



1 careers

Allstate is driving to become high-tech and take charge of the Internet. With the energy of a "dot com", and the resources of a global leader, Allstate is looking for innovators in mainframe, client server, networking and web-based technologies. Offering excellent benefits, compensation and a casual work environment, Allstate opportunities are right here in the Chicagoland area.

Make Allstate your #1 choice!

We're looking for Experienced Professionals with 2+ years of experience for the following positions:

- . Network Diagnostics Engineers with Sniffer experience
- Network Security
- · WAN/LAN Engineers with Router & Switches experience
- · NT Systems Engineers with experience in managing
- 25+ servers . UNIX Systems Administrators With Sun Solaris and
- Legato experience
- . Oracle Programmer for Technical Support with
- 3+ vrs experience
- · AS400/Oracle Tech Support with experience in 15,000+ system environment
- · Transaction Systems with CICS, JCL, TSO and ISPF experience
- DB2 Database Administrators
- Mainframe COBOL Programmers
- · VB 5.0 Programmers with JAVA 5+ yrs experience · ETI Programmers for Data Warehousing
- · Testers/Analysts/DW Analysts with systems experience
- in a mainframe/PC environment
- · Sr. Application Developers/Architects with
  - C/S, 00 analysis & design and full cycle development . SMS Support 1.2 and 2.0 with Windows NT
  - FAX your resume today to:

Alistate Insurance Company, Attn: HORACOMDEX - FAX: 800-526-4831. or email your resume to: www.allstatecareers.com. EOE. M/F/D/V.



www.allstatecareers.com



Errol & Young. The name says it all. And the apportunity speaks loud EAY Applications Services, LLC, a wholly owned subsidiary of Error is a self-out of Company business with operated. As a group that provide a self-out of the self-out of the self-out of the self-out of the professionals. Liv company, our great is creating internections or professionals. Liv company, and provides a professionals. Liv company of the self-out of the professionals. Liv company of the professionals. Liv compa

JAVA ARCHITECTS s should have 6.10 w

SMALLTALK

Includes should passes 2+ years of experience in applications development and a

implies knowledge of the Systems Development Life Cycle. 85 degrees are preferred. PROJECT MANAGERS 4-6 years of Project Manage

**BROADVISION/E-COMMERCE DEVELOPERS** 

SR.DEVELOPERS Condidates should have 4-7 years experience in applications development as well as 1-2 years experience in BROADVISION ENTERPRISE SOFTWARE and a Commerce Web development. BS degrees are preferred.

JR. DEVELOPERS

and dates should possess 2-3 years experience in applicated in applicated in applicated in applicated in ADADVISION ENTIRESTS.

ed professionale should send their resumes to resumes@ey.ex.com. lecretment Dept., 224 S. Michigan Ave., Suite 1760, Chicago, E. 60804. We are

EY AS

the place where your fellow readers

are getting a jump

on even more of the world's best jobs. Stop in a visit.

See for yourself.





( careers

IT CAREERS

careers

careers.com

 $\bigcirc$ 

Imagine an IT job where you make 50% more money than you make today.



170,000 high tech jobs, including your next one

OUR BEST LETCES TO HOU

Want to learn the housest to hidges in Reduited Pecanions and recursion holays

> Sign up today for the 9th Annual ComputerWorld Technical Recruiting and Retention Conference.



May 21 -24, 2000

Marriott's Orlando World Center Resort

For More Information C

careers

COMPUTERWORLD



#### Don't blink

mily can pass you by in an instant. Let's make it happen. Together

#### Mergers & Acquisitions Due Diligence Senior Managers Lagistics, Operations, Technology

Currenty was an existing deliver, team-onemed professionals for the New York and Chazgo markets to conduct and lead mergers and acquisition related assignments. Dates will include per acquisition due diligence, self-sub-due telegricor, and instruction MAX professionals, as well as with private capity and strategic clients to market the MAX of the mental development.

isrange, como so mensione de rao de mensione involuncia. Se sourced, pour mais pel 3 o peri el operior di operior in the result, distribution, manufacturing, ficalità care, bonking, consider, se ribotalegy reductive ai fer CO. COOL General Mesque or Denzob bod Y var invergits must reduct for company, distribution resultance de la company de la company de la company distribution resultance constructure de Edifficial for call for impact of la significance constructure de Edifficial for call for impact of la significance and varieties and

firms it having was named one of the 190 Sect Companies 30 Work Set in a survey published by FORTUNE\* negazine, and offers a dynamic work sensement. a compensive statey and a comprehensive benefits perkupate for semiodiate confidentiation, please in spare resume with substructurements. In Series at Being LLP, page 27, as 2112-79-2712 or e-mail brinks turbiner@upcase. With our Web pix at view-upcaser Luc. Error & Worng LLP, an equal opportunity crypkoyer. Website the Worself John who fixes at the Newbording of our post was the Control for John who fixes and the Newbordings of our post was the Control for John who fixes and the Newbordings of our post was the Control for John who fixes and the Newbordings of our post was the Control for John World for John Page 2018.

#### **ELERNST & YOUNG**

FROM THOUGHT TO FINISH."

#### Mark Your Calendar for The 9th Annual Computerworld Technical Recruiting & Retention Conference

Be with us on May 21-24, 2000. Meet hundreds of technical recruiters who are facing the same challenges as you. Listen. Learn. Share. Pick up new ideas,

insights and techniques.

Selected presentations will include Sue Keever, The Keever Group

Effective Employer Branding for Recruiting & Retention Dr. Bret Hollander, NETRECRUITER

More Cutting Edge Tools for the Internet Recruiter Harry Joe Esq. Jenkens & Gilchrist Immigration & International Recruiting Update

Tracey Claybrooke, Claybrooke & Associates International Internet Recruiting

For More Information

#### call 1-800-488-9204

This conference program is developed exclusively for corporate human resource professionals who recruit directly for their hiring organizations. Vendors of selected, targeted products and services may participate through sponsorships and/or exhibits

IT CAREERS





#### Why London Composition Pure at with With-

- ✓ Recruiting: Increase pool of diverse candidates
- log/Retention: Message of women-friendly cor
- vering Technology: Products/Information to WITI Wo
- so Market Share: Of the fastest-growing segment online

Porticipate in the...

#### WITI CONFERENCE SERIES June 20-22 | Sillcon Valley, CA

October 10-11 | Boston, MA

March 28-29, 2001 | Dallas, Texas

June 20-22, 2001 | Silicon Valley, CA

Become a WITI Partner -Call 800-334-9484 Now!

Women in Technology International

#### IT Careers in Illinois



The West Coest and the Ext Coest are, to one can be used to fit monosition in illinositiers are mega hitters in the IT game companies with along history and this vilon have created entirely new businessmodels. Companies large and small known for their consulting provess and production of new software and integration tools.

In fact, the third largest market for IT job in the United States is in Chicago along interstate 88, what's known as the R&D Courdor in the Windly City Unlike other. If power communities, the watchwords here include not only innovation and continuty, but also words like loyality and enduring business.

# In Illinois there are mega hitters in the IT game

Sentinel Technologies, Inc. Downers Grove, IL

Nestled down between the Lucent Technologies and Arthur Andersen's found in Chicago, Sentinel Technologies is a technology firm that's been around for man'ty 20 years. From its beginnings as an BMM ministranse support firm, Sentinel has reinvented itself several times to adjust to prifting needs and technologies. On clientherver and now to utilization of emerging technologies.

"Our mar crode is see provide Institigent Island and integrated solicity - Tays Island December, "In place Island December Island Integrated solicity - Tays Island December Island Integrated solicity of select and marketory, or granted and integrated solicity of the Island I

Obtome says that one of the strength of sentirel, for employees and customers, it that there are a swritery of stills and projects. Two can the sentirely of stills and projects are superiors, retwork security or finds senses. When the sense is not sense are superior largerism, retwork security or finds senses. When the complexity or that you can grow. Whet has changed is what is viewed as entry level – a few years ago it was one ability to work but had programs and some installation experience. Those, entry level is concorned with extensive superior and people who can provide business which can be a superior ground, and people who can provide business solutions, not just factomings."

Successful candidates tend to be those people who have at minimum mainstream technology experience, but ut as importantly those who have demonstrated an ability to learn and to design and deploy technologies that are the correct enviews for customers' businesses. Obsome says the company not only looks for people who can design but also present

There are a lot of reasons to choose demined as one place to seek by otheren. "Our management team has been tagerher, or paid and the control of the control

"One of the most important espects of this company is that we are people who get gratification from doing excellent work and helping customers— — that's no quick fix, rags to riches model. It's an enduring business model."

### United Stationers Des Plaines, IL

In the world of office supplies and equipment, binned Sationnes is among the leaders with \$3.4 binned Sationnes is among the leaders with \$3.4 office product, binned for the provider office product, binned for the provider supplies, office machines, and juntorial and sanitation product, "replains fight littless, the president of management information systems and CO. "We distribute through a network of 66 wavehouses, delivering most anything to our commercial cultimose within at 10-hay window."

This capability—to serve the office supply received that fail outside the nation of the major chalm - is based on the evolving tool known as e-commerce, it has the serve of e-commerce, about \$3 percent of our business has involved a transaction directly from a customer computer to ours; says Uskup. Over the past three years, this has begun to change with United Stationers developing an interactive interior presence with the resident who are the company's customers.

The company began about two and a half yearage to write brink warp software to enable their age to write brink warp software to enable their over the properties of the properties of the controlled of the controlled by the nears, without IT staffs, we developed orbivate capability. "Biting adds." We have the pure. It capability." Biting adds. "We have the pure. The properties of defining the properties of the pro

ment to support its distribution business. The made people which complete and orbitation business the earlier parameters. Celerateleses, internet gasteres existing amentance, clientateleses, internet gasteres in proporties to be able to used, in statum. It is important to be able to used, in statum, it is proporties to be able to used, in statum, it is important to be able to used, in statum, it is important to be able to used, in statum, it is important to the able to used, in statum, it is important to the able to use the used of the able to the use of work in statum, the proporties and the total proporties able to the use of work in statum, the proporties able to the use of work in statum, the proporties able to the use of work in statum, the proporties able to deep and work in statum, the proporties able to deep and work in statum, the proporties able to deep and work in statum. We put a for of emphasion or standing and tetermemork to

Uniting says the goal is for United Stationers to be the best place to work in the Chicago area. Already the company has won several lacends—reaching Steff in Information Hest's list of "500 Most throwatelve IT Organizations" in 1999 and among the best in Computerwoods" "100 April 24 Risces to Work in IT." "Me work very hard to make this place intellectually fulleraging, where you feel good about your work and have fun," says Usbus." We pay attention to the details."



Don't miss out on InfoMortds first-ever CTO Forum a strategies and solutions summit offering 125 CTOs a rare opportunity for peer-to-peer discussion and networking. Hear first-hand accounts from CTOs at the forefront of the e-Business revolution that can help you turn internet hope into business reality. Register now at www.infoworld.com/ctoforum write limited space is still available?

\_\_\_\_ Your nomination counts. Help the editors of InfoWorld decide who's the first CTO of the Year.
And sign up for the CTO Directory. More than a list, it's where you want to stamp your name
and industry insights. The Directory is available only to Forum attendees and Directory participants.

\*CTO Forum is an invitation-only event. If you would like to attend, but have not received an invitation, please go to www.infoworld.com/ctoforum and click on fregistration?

www.infoworld.com/ctoforum



May 15-17, 2000

San Francisco, CA Featuring the top speakers

you went to hear from, including

Marc Andreessen Chairman, Loudcloud

Bill Joy Chief Scientist, Sun Microsystems

Bob Metcalle InfoWorld Columnist, Ethernet inventor & 3Com Founder Pelda Ala-Pietllä President, Nokia Petar Mills Managing Partner,

Principles CIA/A
Pred Briggs CITQ.MCI WorldCom
Dravid Grant CITQ.Autobycel.com
Richard Drazell CIQ.Autobycel.com
Henri Assoly CITQ.BirRate.com
Gene Rogers CITQ.The Boeina

Company Henry Samueli CTO, Broadcom

Henry Samuel CTO, Broadco Exploring the burning

know about, including: CTO Shop Talk: Managing in a 24x7 World B2B Heats Up: The eXchange

Advantage Incubating the IPO: A Case Study The e-Business Phenomenon

Future Scope: Seeing Around Corners The Long Boom: The Drivers of Prosperity and Growth Telecom Titans: Raising the

O Forum Sponsors:



300

# PERCENT e Corp. (L)

# Roller-Coaster Ride May Not Be Over

Stock plunge sets off alarm for tech investors

HE CONTINUING volatility of technology stocks suggests that there could be even more correction on the way before the market starts. stabilizing again, analysts cautioned. Both the Nasdaq composite

index and the Dow Jones industrial average once again dropped sharply last Wednesday on future garnings concerns relating to IBM [NYSE:IBM] and Intel Corp. [Nasdag:INTC]. Nasdag dropped 84.24 points to close at 3,706.41, while the Dow shed 88.73

points to close at 10.674.96. The losses broke a two-day winning streak during which both the Dow and Nasdaq seemed to be recovering strongly after the April 14 technology rout (see chart). That self-off was triggered by inflation concerns that caused the Dow to lose more than 600 points and Nasdaq to lose more than 400 points - their largest one-day losses ever.

-	-	
Departure Contract	in and a	
Trian.	now	MASONO
April 19	10,674.96	3,706.41
April 18	10,767,96	3,793.57
April 17	10,582.51	3,539,16
April 14	10,305.77	3,321,29

Last Wednesday's plunge shows the roller-coaster ride may not quite be over yet for technology investors, said Richard Chu, an analyst at Cowen & Co. in Boston. "What we are seeing is a deconstruction of the speculative ex-

cesses of the last few months." As investors take a closer look at the stock valuations of some companies, "I would definitely not suggest that the cor-rection process has finished. In fact, we are burely at the beginning," Chu said. The April 14 self-off suc-

gests that "there is more downside to come - typically such a dramatic correction takes time to heal," said analyst Ashok Kumar at U.S. Bancorp Piper Jaffray Inc. in Menlo Park, Calif

The ongoing volatility suggests that the technology sector meltdown that some analysts had been predicting is finally here, said David Wu, an analyst at ABN Amro Chicago Corp. in Mountain View, Calif.

Particularly hard-hit were several Internet stocks that have seen their valuations drop dramatically over the past few weeks. Examples include companies as varied as Santa Clara, Calif-based Yahoo Inc. [Nasdaq:YHOO], Seattle-based Amazon.com Inc. [Nasdac:AMZN] and Cambridge, Mass-based Akamai Technologies Inc. [Nasdag:AKAM], all of which were trading 50% below their valuations earlier this year. Old-line companies have also been hit IBM fell 5 points to just over 106 following its earnings report last week, while Intel

dropped more than 6 points to 122. "It's anybody's guess when the meltwn will stop," Wu said. "All I know is I would want a bigger percentage of stock options if I were joining a dotcom company," he said.

#### 7 15 LC

The large of the l A 13 570 13 N 60 130 20 100 130 13 100 230 21 812 10 83 MM 130 21

# 60 0 0 0 0000 (cm.)

| \$10 0 0 0 0000 (cm.)
| \$10 0 0 0 0 0 0000 (cm.)
| \$10 0 00

TO THE SECOND STATE OF THE SECOND SEC

KEY: 000 - New annual high reached in period GD + New annual low reached in period Copyright CNET investor, Bredder, Colo. news.com/inventor) This information is based on sources believed to be reliable, and though extensive effects are made to accure in accuracy, no guarantees can be made. CNET

# How to Contact Computerworld



# Accessibility Law Evokes Cheers, Fears

IT must meet new standards by Aug. 7

ECTION 508, a technology-related amendment to the Americans With Disabilities Act (ADA), is scheduled to take effect Aug. 7. The sendment is being both hailed as a milestone and criti-

cized as premuture. The law will help preveou iob discrimination against neople with disabilities, said Attorney General Janet Reno at last week's POSE trade show and government user confer-"Some employees with disabilities lost jobs or became underemployed due to techno-logical advances," Reno charged call for fundamental changes in a report to the president on

According to the 1994 U.S. Census, 49 million Americans have a disability, 24 million require assistive devices such as wheelchairs, and only about a quarter of people with disabili-

ties have jobs. Guidelines for 508 call for use of standard application products can be in compliance programming interfaces for assistive technology. But compliance can be as simple as providing a keyboard option for a mouse click, such as typing "Control-P" instead of using a

mouse to select the print option from a menu. Reno said Waivers are available for some applications, such as fighter planes or weapons sys-

call for fundamental changes in the device or software Wakefield said

It's not the law but its timing that is at issue, said Harris Miller, president of the Information Technology Associa-tion of America industry group in Arlington, Va. Standards for product compliance woo't be ready by Aug. 7, therefore no

by then, Miller said. The group charged with defining the standards, the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board), recommended that the law take effect not on Aug. 7, but six months later, said David M. Capozzi, a director of the

mation Services. The ITAA plans to petition Congress for a similar extension. The law doeso't require ven-

dors to embed more costly, assistive technology such as braille displays or screen readers, said Douglas Wakefield, IT accessibility specialist at the Access Board

It's preferable that they don't add such technology, Wakefield said. Use of stendard applicatioo programming interfaces in software, for example, would let a user choose any screen reader and it would work with that software, be said.

For five years, the U.S. Department of Education has been working in its testing lab with information technology vendors such as Compaq Computer Corp., Microsoft Corp. and Oracle Corp. to develop many of the requirements and language in Section 508, said

Craig Luigart, the department's CIO Section 508 covers only the federal government, but its requirements likely will be re-

carry a high price tag. FreeZone Network, for en-stance, estimates it spent \$96,000 to make its site com

ant with the act, according to Ali son Pohn, the Chicago-based

company's managing director.
"We're welcoming COPPA,"
said Pohn, "pericularly to educ parents and lode about when's

600,000 registered users. What a child under 13 registers at the sie, the birth date will lock the

user to a perental concern form that must be laxed to the comp

as \$53,130 on safety contest, d

ny. Poho said.

The company e

JUST THE FACTS Equal Accessibility Section 938

report recommendations: · Increase coordination of federal technolcov accessibility efforts.

· Create a technology accessibility hetling · Offer a technical support control

 Entablish accomplise products and trace · Provde an internet message board to

flected in the private sector within five years, Luigart said driven not by the disabled bur

by aging buby boomers. Bernard B. LaFleur, presi dent and CEO of kiosk vendor Quad Media in Radford, Va. scoffed at timing objections The ADA details many of the standards, as do proposed guidelines for the 508 ame ment, LaFleur said. Technology to make IT accessible not new he said &

Continued from page I

Aftab & Savitt PC, which specializes in Internet laws concerning children. "They think they are, but they aren't. Part of the problem, said Aftab, is that many generalinterest Web sites that have a section for children or run a special kids' event, such as a contest, don't realize that they must comply with COPPA.

And compliance can be difficult and costly. Alison Pohn, managing director at The FreeZone Network in Chicago, said her company spent \$96,000 making its site compliant with the act (see related story at right). She recends hiring a lawyer to determine what level of coosent is required and what must

be included in the privacy The act requires that any site with knowledge that children under the age of 13 are visiting and sharing personally identi-

it's required for registration at the site or might be revealed in a chat room or posting service - must gain prior parental consent. The consent requirement ranges from e-mail notification for sites that don't share information to off-line verification - via fax or telephone - for sites that share personally identifiable infor-

mation or allow children the opportunity to do so, such as in a chat room. Most major children's sites. such as Atlanta-based Cartoon Network Inc. and New York based Nick.com, have worked diligently to meet COPPA's reirements, according to Loren. Thompson, an attorney at the

Federal Trade Commission. "I think it behooves a lot of sinesses to do these things anyway," she said. For some sites, complying with COPPA went down to the

At the Web site of former Beanie Baby maker Ty Inc., for example, kids can register to participate in online chats. But the day before the deadline, fiable information - whether the company's privacy state-

James Lattle of Francischerk Mapes, party other making others. Plastic under Capadian man-origin principal data for the late work in December and the first contr. In James to Canada, and interested the first to III of III and III of III and interested the other in III of II

board's Technical and Informent didn't list the required contact information. COPPA mandates that kids ' sites list contact information such as address, telephone number and e-mail so parents can easily reach the company.

John Hong, Internet coordinator at Ty, said the company has been working on COPPA for some time and that be expected the site to be "100% com by the FTC deadline. On Friday. the company's privacy policy had been updated to meet COP-

COPPA "may shake up the industry," said Allisoo Ellis. vice president of programming and content at Los Angelesbased FoxKids.com Inc., which brought its site into compliance the day before the deadline. There are places that simply collect information and their noses at the FTC." The FTC will be pursuing

several cases in the comis months and searching for noncompliant sites, Thompson Sites that don't meet COPP/

requirements could face fines of \$11,000 per violation 9

# Protecting Kids' Privacy Is Costly

that protecting lids' prescy online is a worthy endeaver. But comply-ing with the Children's Online Pri-very Protection Act (COPPA) can

"Us way to be complant as to just not allow kids 12 and under on the site," sed Karen Dekters, president of eChancom, a Sen Francisco-based site devoted to kids talgen above it. licts billing about their teen age crushes. "We just clidn't have the manpower to verify all the untal concents, and there's jus

Elminating children under 13 from the sale out o'Crush's auclionce of 350,000 users by about 5%, she said. The additioner big a price tag given that the sile nats at an arvivel cost of about \$1 per user, DeMars said.

FRANK HAYES/FRANKLY SPEAKING

# HR ain't that bad

Oo BOY! Last week I suggested — among other things — cutting the human resources department out of the IT-shop hiring loop. I might as well have wired every copy of Computerworld straight to wall current. What students, career changes and consultants who'd prefer a steady gig, all of them snartling for the heads of the people in FIR. Not a single organizer, network administrator or operations guy had a nice world to say about the gatcheepers who make it so hard to get an interaction.

Just taking

HR out of the

process won't

solve the

problem.

#### nterview.

But I was wrong.

Just taking HR out of the process won't solve the problem. For one thing — as several recruiters, HR people and hiring managers wrote to tell me — HR doesn't dream up those loony 10-years-of/ML sepreince requirements. Hiring managers and department heads do that. For another, good HR people actually work hard to get the right requirements specified and the right requirements as pecified and the

ing manager.

And anyhow, hiring is such a complicated legal morass these days that no big company can afford to do without HR specialists.

ford to do without HR specialists So how can IT joh applicants get past those HR gatekeepers? Maybe by doing some things that actually make the whole process

smoother and more successful for Do the research. Find out what's in demand. Check out Web sites with current job-market informa tion, like www.computerworld. com/careers or www.rileyguide. com. Research the right buzzwords for your résumé. If you want to work in a particular industry, pick likely employers and dig deeper to find out what they need. Sure, they all want experience — but doing what? Target your résumé. Don't waste HR's time or anyone else's. Work over that résumé like it's critical code. Make your résumé clear and easy to read - in every

sense. If it's electronic, make sure it's in plain text, not some word-processor format. If it's on paper, forget the fancy fonts — you want throe automated scanners to recognize the buzzwords you researched.

Talk to friends. If you don't have friends in IT shops, make new friends. Most companies — around 90% — like to hire people their own

employees referred. Most managers will feel a lot more comfortable about you if Mary the programmer or Al the system administrator

says you're OK.

Ask around. If you can't get an employee referral,
you can still schmooze at user-group meetings.

Ask your hrother-in-law. Ask your next-door
neighbor. Pick up the phone, call potential em-

neighbor. Fick up the phone, call potential employers and ask if they're hiring, what they're looking for and how to pitch your resumé. Call your college's placement department — they'll be asking for alumni donations for the rest of your life, so you

might as well ask back. Toot your horn. If you're a Java specialist, say so up front. If you've been managing Oracle databases for years, make it

known. If you're a businessprocess expert, tell them. Don't make amyone guess what you're good at. And don't make yourself sound like a generic IT grunt. Nobody's filling a generic joh. Know your prion. And be realistic

— it Ib set by supply and demand, not your skills and experiione. In-demand specialists make big bucks because they're hard to come by, if experienced IT people make more, it's because they got smarter, craftier and more productive, not just older. Generic programmers and operations workers are cheap. That's cold, hard and ugly — but

it's true.

Sell yournelf. You say you're not a salesman? You are now. Chase leads, track prospects, make cold calls, follow up — and you'll have a much better shot at getting past those HR gatekeepers. 9

Hayes, Computerworld's staff columnist, has covered IT for more than 20 years. His e-mail address is frank haves@computerworld.com.

# SHARK TANK

A NERVOUS SENIOR IT man ager whispers to their softworeguru plot lish, "What's it take to spool an e-mail?" Seems some one got a phony message appar (but not really) from the CEO. The fish runs down the lest cracking the password life, a someone sneaking into the CEO's office while he's at lunch Then he tries comething sample At a test workstation he logs on as the CEO, using the CEO's user ID as the password. Turns out we didn't need any sophisticated or underhanded method spool the CEO," says the fish.

just his name. Postscript: Re-

peating the story to a co-worker

a month later, the fish tres it

again - and it still works.

PILOT FISH'S TEAM is tacked with testing a diagnostic tool that took another few programmer took arother few programmer teem a year to develop. The sample test cases work fee, but the fach's term can'l get the tool to diagnose real-world problems. Friday of 3, the fach's boxs sets up a Monday sneeding with the

to make a source of the well of the colors. Friday at 3, the fish's boss sets up a Monday meeting with the head of the tool's development team so she can explain how to use it. Monday, 8 a.m., she no-shows. At 10 a.m., he fish finds out why. The missing menager mesigned on Friday at 4:30.

MEW LAPTOPS for a state court system's judges come with Windows 2000 preinstalled. But the pilot fish prespring the PCs discovers the default configuration won't work properly on the network. Will we get the Win 2k CDs to reconfigure than?" also, a fish. No, says the boss. "What happers if we need the CDs to includ software?" the fish processes, with a straight face: "To know the ward if "To know for ward if".

ME LONELY BRAIN CELLS

OUT THERE Lest Monday, a pilot this starts getting necouper that obviously contain mann wasses. (You know the ones: "Important Message Fisher" subject line, and the Word file inside remails stell 20 times; IT quickly warns sweyne to delete the support messages, but the mail sorver still crashes. Finally, all so call Back to work, right? Nor. "I get the same mail resessage again, from the same sur who had again, thom the same sur who had spain, thom the same sur who had spain.

started it all," says the fish, "She

corned the life again

What comes after IZ? Sharify hears the neat release of Sybare's Adaptive Server won't be TQ, that might be, um, unladey, And M is no good becase in some Asson callures that's also suppossely lead never, The current plan is to didn't 15 unless a higher bid corres in. Maler your bid to score a Sharit "Faitht: shariffy."

computerworld.com. And take the daily dive at computerworld.com/sharin.

## The 5th Wave



'In preparation for taleroff, we ask that you turn off all electronic devices, laptop computes and mainframes..."

# THE IBM UNIX BOX THAT RACKS AND STACKS. MAGIC FOR ISPS.

WEB HOSTING. CACHING MESSAGING FIREWALLS.

E-COMMERCE. IT ALL FITS INSIDE A BOX 1917 19" X 2 4"
THE STACKABLE, ROCKABLE, ISM BSO UNIX SERVER.

EAST TO INSTALL. ALL WITH A PK E 70 LOWER THAN
A COMPARABLY EOU PPED UN NETER TI. MAGIC
IN A BOX. PULL THE TRIOCER ON A \$3,995 BSO SERVER
TODAY BY MOUSING OVER TO IDM. COM/MAGILED. RCS



SUNRISES, SUNSETS, AND KINGSTON SERVER MEMORY.
GUARANTEED RELIABLE

#### L'IMPSION MEMORY

FEW THINGS IN LIFE ARE GUARANTEED. So when you find something that is, you suck with it. That's why more Fortune 500° companies standardize on Kingston' server memory than any other memory brand. Because Kingston guarantees reliability with every module it ships. How? By subjecting each module to the most rigorous testing in the industry. By promising the highest server uptime available. And by certifying 100% compatibility with the system or class of systems it was designed for Add free technical support, and a lifetime warranty, and you've got memory guaranteed to get you through a lifetime of sunsets Don't wast until tomorrow. Get the industry's most reliable memory today. Go to www.kingston.com/jump/reliable and register. to receive your free Kingston server guide. Or call (800) 259-8965.



Control of the contro